**Honolulu Seawater Air Conditioning, LLC**
Affiliate of Renewable Energy Innovations, LLC, the **COOL GREEN & CLEAN™** Company

7 Waterfront Plaza, Suite 407, Box 124, 500 Ala Moana Boulevard, Honolulu HI 96813
**Tel** 808.531.SWAC (7922) **Fax** 808.531.7923 www.honoluluswac.com

June 13, 2008

Mrs. Donna Tsuruda-Kashiwabara
State of Hawaii
Department of Accounting and General Services
1151 Punchbowl Street
Kalanimoku Building, Room 416
Honolulu, Hawaii 96813

Hand Delivered

Re: RFP-08-022-SW; Response

Dear Mrs. Tsuruda-Kashiwabara,

Than you for the opportunity to submit this proposal for qualification as an Energy Services Company on the State of Hawaii vendor list to be used to execute future contracts on "energy saving performance contracts".

Honolulu Seawater Air Conditioning, LLC (HSWAC) confirms it shall comply with the requirements, provisions, terms and conditions specified in RFP-08-022-SW and this proposal.

Contained herewith HSWAC forwards the following documents (10 copies each):

1. This Cover Letter
2. Offer Form OF-1
3. DAGS RFP Response Form (completed)
4. Exception #1
5. Exception #2

Please note that all information on customers of HSWAC affiliates in Saint Paul, Minnesota is confidential. The information will be made available upon request.

We look forward to participating in future secondary requests for proposals with State and County agencies and delivering cool, green and clean environmentally friendly air conditioning service to many government buildings in downtown Honolulu.

If you have any questions or require clarification, please feel free to contact William Mahlum, President and Chief Executive Officer, at (808) 531-7922 or by email at William.Mahlum@honoluluswac.com

Aloha,

Ingvar Larsson
Vice President
Honolulu Seawater Air Conditioning

ENERGY PERFORMANCE CONTRACTING SERVICES
STATEWIDE
RFP-08-08-022-SW

Procurement Officer
State Procurement Office
State of Hawaii
Honolulu, Hawaii 96813

Dear Sir:

The undersigned has carefully read and understands the terms and conditions specified in the Specifications and Special Provisions attached hereto, and in the Attorney General's General Conditions, by reference made a part hereof and available upon request; and hereby submits the following offer to perform the work specified herein, all in accordance with the true intent and meaning thereof. The undersigned further understands and agrees that by submitting this offer, 1) he/she is declaring his/her offer is not in violation of Chapter 84, Hawaii Revised Statutes, concerning prohibited State contracts, 2) he/she is certifying that the price(s) submitted was (were) independently arrived at without collusion and 3) he/she is committed to the maximum mark-ups and fees for work provided in Offerors proposal package in response to this solicitation.

Offeror is:

☐ Sole Proprietor ☐ Partnership ☐ *Corporation ☐ Joint Venture
X Other Limited Liability Company
*State of incorporation: Hawaii

Hawaii General Excise Tax License I.D. No. 20036690-01

Payment address (other than street address below): _____
City, State, Zip Code: _____

Business address (street address): 7 Waterfront Plaza, Suite 407, Box 124, 500 Ala Moana Boulevard
City, State, Zip Code: Honolulu, Hawaii 96813

Respectfully submitted:

Date: June 13, 2008

(x) Ingvar Larsson
Authorized (Original) Signature

Telephone No.: (808) 531-7922

Ingvar Larsson, Vice President of Engineering
Name and Title (Please Type or Print)

Fax No.: (808) 531-7923

E-mail Address:
ingvar.larsson@honoluluswac.com

** Honolulu Seawater Air Conditioning, LLC
**Exact Legal Name of Company (Offeror)**

**If Offeror is a "dba" or a "division" of a corporation, furnish the exact legal name of the corporation under which the awarded contract will be executed:

_____

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# Honolulu Seawater Air Conditioning, LLC's Response to Request for Proposals No. RFP-08-022-SW

## 1.0 OVERVIEW OF APPROACH TO ENERGY PERFORMANCE CONTRACTING

### *1.1* Company Background

Honolulu Seawater Air Conditioning, LLC ("HSWAC") is an Energy Service Company ("ESCO") that provides an energy cost savings alternative to meet the cooling requirements for buildings located on the HSWAC district cooling distribution system, using an infinite, renewable energy resource – cold from deep seawater. Appendix A provides additional information about seawater air conditioning (SWAC) district cooling and the downtown Honolulu SWAC system.

The HSWAC system will reduce the need for new electricity generation capacity and will significantly reduce the use of imported fossil fuels for electric generation in Hawaii. HSWAC will also provide a variety of environmental, economic development, and customer benefits.

HSWAC was founded by Ever-Green Energy, LLC, of St. Paul, Minnesota, to develop renewable energy seawater air conditioning projects in Hawaii.

Hawaii was selected due to the fact that fossil fuels, most of which is imported oil, are used to generate 94% of the electricity to operate on-site building cooling systems. And, electricity costs in Hawaii have always been among the highest in America.

Ever-Green Energy is a for-profit affiliate of District Energy St. Paul, a non-profit heating utility, and District Cooling St. Paul, a non-profit cooling utility, in St. Paul, Minnesota, and a product of the nation's most successful public/private energy partnership for over 25 years.

Ever-Green Energy offers professional services related to the development of new renewable energy systems, including financing, engineering, operations and customer sales and service. Ever-Green Energy also offers innovative implementation of new energy concepts, applications and district energy system development and provides owners improved system synergies and efficiencies.

Ever-Green Energy affiliate, District Energy St. Paul, operates the largest, most successful, hot water district heating system in North America. Ever-Green Energy manages the operations of District Energy.

District Energy's heating system delivers hot water to customers year-round by a system of super insulated underground pipes that extends through the downtown St. Paul area. The water is used for space heating, domestic hot water, and light industrial process use. District Energy currently serves more than 185 downtown area buildings and 300 individual residences. The customer base includes multi-family, commercial, industrial and large institutional structures. The total building area served exceeds 31 million square feet, or 80 percent of the downtown St. Paul area.

Ever-Green Energy affiliate, District Cooling St. Paul, operates a large chilled water district cooling system in downtown St. Paul. Ever-Green Energy also manages the operations of District Cooling.

District Cooling delivers chilled water year-round through underground pipes, which are separate from the heating system pipes. The water provides air conditioning with no use of ozone-depleting chlorofluorocarbon (CFC) refrigerants. In addition to chiller capacity, the system is served by a two chilled water storage tanks (2.5 million gallons and 4 million gallons respectively) that store chilled water

produced at night using off-peak electricity for daytime distribution to customers. District Cooling currently serves more than 95 customers, representing more than 35,000 tons of cooling demand. The total building area served is about 18 million square feet, or just under 60 percent of St. Paul's central business district.

HSWAC is using the services of Ever-Green Energy personnel, as well as local renewable energy, energy efficiency, seawater pipe design, and environmental experts, to develop a large-scale SWAC system for downtown Honolulu.

### 1.1.1 Areas of Expertise

Ever-Green Energy team members are experienced leaders when it comes to energy conservation and the efficient conception, design, operation and management of renewable energy systems. Visitors from around the world turn to us for business and technical advice.

Our operation managers and plant, distribution and auxiliary plant operators have over 20 years of experience. The team has achieved outstanding reliability records of over 99.99%. We have many years of experience in operation of district energy systems and know how to optimize production to meet customer energy requirements.

Ever-Green Energy's financing professionals prepare capital and operating cost estimates and explore financing alternatives to ensure the lowest possible costs. Creative energy financing is our specialty, having worked with limited available equity and non-profit organizations involved in capital-intensive district energy projects.

HSWAC's professionals have extensive knowledge and experience in the development of seawater air conditioning district energy systems. Senior engineers have more than 10 years of experience in developing, designing, constructing and commissioning of seawater/lake water air conditioning systems.

HSWAC's primary area of expertise is providing SWAC district cooling to a variety of customers. However, HSWAC is willing, and prepared, to partner with other ESCOs and energy efficiency subcontractors to provide a wider variety of ECMs that will only enhance the savings already provided by SWAC.

### 1.1.2 Company Strengths

Ever-Green Energy's operation managers and plant, distribution and auxiliary plant operators have over 20 years of experience in energy operations. The team has achieved outstanding reliability records of over 99.99%. We have many years of experience in operation of cooling systems and know how to optimize production to meet customer energy requirements

Ever-Green Energy's financing professionals prepare capital and operating cost estimates and explore financing alternatives to ensure the lowest possible costs. Creative energy financing is our specialty, having worked with limited available equity and non-profit organizations involved in capital-intensive district energy projects.

Ever-Green Energy's engineers have the invaluable operations hands-on experience to work with Hawaii-based design engineering to assure the optimum SWAC system design. Experience dictates that local engineering expertise, working with Ever-Green Energy's engineering team, will result in the optimum project. HSWAC is able to take advantage of the strengths of Ever-Green Energy personnel and apply these strengths to successful SWAC development projects in Hawaii.

Finally, as a result of result of utilizing Ever-Green Energy's district energy engineering expertise, and local energy efficiency and renewable energy experts as part of its development team, HSWAC has the ability to optimize the design and environmental performance of all aspects of a project – energy conservation, water conservation, reduction in sewage generation, reduction in greenhouse gas and other emissions, and improved indoor air quality.

## *1.2* Market Sectors Served

Ever-Green Energy's district heating affiliate, District Energy, serves more than 185 downtown area buildings and 300 individual residences. The customer base includes multi-family, commercial, industrial and large institutional structures. Total building area served exceeds 31 million square feet, or 80% of downtown St. Paul.

Ever-Green Energy's district cooling affiliate, District Cooling serves more than 95 downtown buildings, representing a wide variety of market sectors with more than 35,000 tons of cooling demand. Total building area served is over 18 million square feet, or 60% of St. Paul's central business district.

HSWAC will provide SWAC district cooling services to more than 40 buildings in downtown Honolulu, serving a building area of approximately 12.5 million square feet. The downtown Honolulu SWAC system will serve a wide cross-section of market sectors. This includes government facilities (city, state, and federal), hospital facilities, transportation facilities, multifamily buildings, and commercial facilities.

## *1.3* General Approach to Performance Contracting

HSWAC customers contract for the SWAC cooling service by signing long-term agreements that will assure the delivery of chilled water. The agreement has Uniform Provisions for all customers addressing the general conditions including the measurement of energy usage, the costs associated with the service, and the assurance of the reliable delivery of chilled water.

HSWAC customer charges are divided into Capacity and Operating Charges. The Capacity Charge represents approximately 67% of the total HSWAC customer charges and relates to costs to finance the system. These charges are set in the contract for the first two years and seven months and are scheduled to increase thereafter at one-half of inflation, or 1.75%, whichever is the greater. Accordingly, the Capacity Charge will increase below inflation over the term of the contract. The customer's capacity usage in tons is also fixed for the first two years and seven months are thereafter are calculated based on a formula based on the customer's actual usage. The customer Operating Charge, representing approximately 33% of the total HSWAC customer charges, are generally operating expenses that are subject to inflation (i.e., fuel, personnel, rent, G&A, management, insurance, etc.) and are charged based on the customers ton-hour energy usage. At an oil price of $100 per barrel, electricity costs represent approximately 57% of the Operating Charge or approximately 19% of total charges. Capacity and Operating Charges replace the building's existing air conditioning costs associated with the electricity costs, maintenance, chemicals, repair and replacement, labor, water and sewer, and capital costs.

### 1.3.1 Project Development

HSWAC initially identified 65 potential customers in its downtown Honolulu service area. HSWAC gathered pertinent information and initiated introductory and exploratory meetings with each of them. HSWAC started with the largest customers and is progressing down the list. Total market potential is in excess of 50,000 tons in more than 90 buildings. Of this market potential, 17 State of Hawaii buildings represent 4,350 tons, or about 17% of the total SWAC system design capacity of 25,000 tons.

### 1.3.2 Energy Auditing

For each prospective customer, a facility analysis was conducted. This analysis is beneficial to both HSWAC and prospective customers. The analysis provides detailed information on how a SWAC system might be of value to customers. The analysis includes the following elements:

- present electricity cost and cooling load profile, to be used to evaluate the reduction in life-cycle air conditioning costs due to shifting to a SWAC system;
- installed cooling equipment capacity, age, status, and performance;
- utilized cooling capacity;
- usage of heat pumps for domestic hot water (if any);
- cooling equipment efficiency;
- water and chemical usage for cooling towers and blow-down to sewers;
- maintenance and service records and bills for the cooling equipment;
- location of cooling equipment and alternate use of freed up space;
- salvage value of cooling system; and
- available tax credits and/or rebates due to using energy efficient services.

The detailed costs, merits and risks of a SWAC system are discussed with customers. A qualified letter of intent is also presented to the customers in advance of a final contract.

There are 17 State buildings in HSWAC's downtown SWAC Project service area. HSWAC has already audited the air conditioning systems for most of these buildings, at no cost to the State, using the above procedure. Preliminary findings show that, individually and collectively, all of the buildings will save substantial energy and money.

A more detailed description of the facility energy audit and analysis used is provided in Appendix B.

### 1.3.3 Performance/Savings Guarantee

HSWAC’s pricing strategy is to establish an HSWAC customer cost at, or less than, the avoided cost level as a very strong attraction to switch from unstable cooling costs to stable cooling costs. The strategy is simple - dramatic cost savings with very stable pricing. In addition, there are significant environmental or "green" benefits.

The cost of SWAC will remain stable while the cost of on-site, conventional cooling systems will continue to rise. Customer capital costs for possible upgrades or necessary replacements are eliminated and more facility space is made available by conventional equipment removal (chillers, cooling towers and evaporators).

Collectively, for the 13 State of Hawaii buildings audited and analyzed by HSWAC, SWAC costs were less than conventional cooling costs when the cost of low sulfur fuel oil (LSFO) used by HECO was more than $56/barrel. Current LSFO costs are more than $100/barrel. At $100/barrel, cost savings to the State are nearly 20%. And, oil prices, and customer savings, are projected to continue to increase in the future.

SWAC costs are expected to increase at less than the cost of inflation due to the predominance of the debt service component for this type of capital-intensive project, so SWAC will continue to cost less than conventional cooling and will continue to provide significant cost savings to the State for the life of the SWAC system.

### 1.3.4 Financing, Construction

The HSWAC total project cost, while capital intensive, will be financed by $100 million of tax exempt (Special Purpose Revenue Bonds authorized by the State of Hawaii) and $22 million of taxable revenue bonds, which, together with the $30.5 million of equity ($10.75 million of this equity has already been secured from State of Hawaii and outside investors), significantly leverages the ultimate debt service cost to customers. With just 33% of the project's annual expenses variable and subject to inflation, the project presents a 25-year very stable customer cost for building cooling. Customers' internal capital expenditures will be almost totally offset by an existing customized rebate program offered by the Hawaii Electric Company, which is currently designed for up to $300 per ton for electrical efficiency. Construction will begin in early 2009 and initial cooling service will be provided to customers in mid-2010.

### 1.3.5 Commissioning

HSWAC's staff is highly experienced at commissioning implemented district energy systems for proper installation, operation, and efficiency. The result is a fully functional, fine-tuned system that can be re-commissioned throughout the useful life of the facility and systems. HSWAC will commission its entire SWAC system and will help customers to optimize the operation and performance of the cooling systems within their facilities throughout the life of the systems. HSWAC will assist in any third party review and monitoring of ESCO design and construction work for quality assurance / quality control purposes.

### 1.3.6 Measurement and Verification

Baseline energy is determined through an analysis of chiller name plate data, discussions with on-site building management personnel, utility meter billing analysis, review of control building energy management system data, and a knowledge of typical performance of such systems based on past experience and/or engineering studies (see also section 1.3.2). Similarly, water use and sewage generation are determined based on reported or typical cooling tower blow-down cycles and a knowledge of typical performance of such systems. Use of SWAC eliminates the need for cooling towers and associated water use and sewage production. Post-installation energy use will be accurately determined through billing and a detailed knowledge of SWAC energy use per unit of cooling (ton-hr).

### 1.3.7 Client Staff/Occupant Training

Each building's air conditioning system operation will be greatly simplified by the use of SWAC. Few, or no, changes in air handler or chilled water distribution system operation within the building will be required. System maintenance requirements will be significantly reduced (see section 1.3.8). Therefore, there will be little or no need for occupant training. However, HSWAC will provide any necessary training for client staff and HSWAC personnel will be available locally to provide any assistance.

### 1.3.8 Post-construction Maintenance Support

HSWAC will maintain the SWAC district cooling system that delivers chilled water to buildings. Chillers and cooling towers within the buildings, and the maintenance associated with these components will be no longer required. All other air conditioning systems components within the building (e.g., chilled water distribution pumps, air handlers, valves, etc.) will remain the same. The building owner will have to maintain these components and the building interconnect. However, far less maintenance will be required, at a substantially lower cost. HSWAC, or the building owner, can contract for these services as before.

## 2.0 PROJECT HISTORY

### *2.1* Market Sector Involvement

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

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating energy services to the Paul & Sheila Wellstone Elementary School, Mount Airy Community Center and Franklin Magnet School representing 185,000 square feet of building space.

2.1.2 School districts – large

Not Applicable

2.1.3 Higher education facilities – universities and major colleges

Not Applicable

2.1.4 Higher education facilities – community colleges and small/rural colleges

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating energy services to the St. Paul College and McNally Smith College representing over 456,000 square feet of building space.

2.1.5 Cities/Counties – large

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating services to 20 City of St. Paul and Ramsey County buildings representing over 3,400,000 square feet of building space. Long-term contracts with most of these facilities have been in place for up to 24 years. Included among the buildings receiving energy services is City Hall/Ramsey County Courthouse, Ramsey County Government Center West, Ramsey County Law Enforcement Center, Ramsey County Juvenile Justice Center, Fire Station No. 8, Griffin Building (St. Paul Police), RiverCentre - Touchstone Energy Center and RiverCentre - Roy Wilkins Auditorium (both are owned by the City of St. Paul), and the Xcel Energy Center (owned by the City of St. Paul).

2.1.6 Cities/Counties – small

See 2.1.5 for Cities/Counties

2.1.7 Medical/Hospital facilities

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating services to all four of the major medical/hospital facilities in downtown St. Paul representing over 2,900,000 square feet of building space. These include Regions Hospital, United Hospital, St. Joseph’s Hospital and Bethesda Lutheran Medical Center. The medical/hospital facilities have all received energy services for over 20 years.

2.1.8 State Department of Defense/Military facilities

In St. Paul, Minnesota, affiliate companies provide both cooling and/or heating services to the State of Minnesota National Guard Armory and Veterans Affairs Building representing over 196,000 square feet of building conditioned space for over 24 years.

2.1.9 Correctional facilities

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating services to the major correctional facilities in downtown St. Paul representing over 584,000 square feet of building space. These facilities include the Ramsey County Law Enforcement Center, Ramsey County Juvenile Justice Center and Ramsey County Adult Detention Center.

2.1.10 Transportation facilities (airport, harbor, highways, parking structure)

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating services to seven parking structures and skyways representing over 249,000 square feet of conditioned space.

2.1.11 Sports complexes, stadiums, arenas, etc.

In St. Paul, Minnesota, affiliate companies provide heating and cooling services to the 18,600 seat Xcel Energy Center which is home to the Minnesota Wild NHL Hockey team since it opened in September 2000.

2.1.12 Other government entities – recreation centers, library districts, data/communication centers, etc.

In St. Paul, Minnesota, affiliate companies provide heating and cooling services to the St. Paul Public Library, RiverCentre – Touchstone Energy Centre and Roy Wilkins Auditorium, Paul and Shelia Wellstone Center.

2.1.13 Multifamily buildings – high-rise or large buildings

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating services to 34 residential buildings represented approximately 5,400,000 square feet of conditioned building space.

2.1.14 Multifamily buildings – smaller scale multi-plex buildings

In St. Paul, Minnesota, affiliate companies provide heating services to 300 townhomes for over 20 years.

2.1.15 Multifamily buildings – mix of building types

See Section 2.1.13.

2.1.16 Community-wide efforts – multiple entities in partnership, or other

In St. Paul, Minnesota, affiliate companies provide both cooling and/or heating services to the State of Minnesota buildings including the Capitol Complex for over 20 years. The total number of State of Minnesota buildings receiving services is 14 representing over 3,100,000 square feet of building space.

2.1.17 Judicial Facilities

In St. Paul, Minnesota, affiliate companies provide cooling and/or heating services to the Warren Burger Federal Building/United State Courthouse, and The City Hall/Ramsey County Courthouse for over 24 years.

## *2.2* Project Summary

HSWAC's affiliate company in St. Paul, Minnesota has provided heating services through long-term energy contracts to downtown St. Paul and surrounding area since 1983. The district heating system currently services over 31 million square feet of conditioning space and more than 185 buildings and 300 townhomes. Over the last five years, over 40 buildings and over 4 million square feet of conditioned space have been added to the system. The average annual rate increase from 1983 to 2007 is 2.4 percent, while inflation has averaged approximately 3.1 percent.

HSWAC's affiliate company in St. Paul, Minnesota has provided cooling services through long-term energy contracts to downtown St. Paul and surrounding area since 1993. The district cooling system currently services over 18 million square feet of conditioning space and more than 95 buildings. Over the last five years, over 25 buildings and over 4 million square feet of conditioned space have been added to the system. The average annual rate increase from 1993 to 2007 is 1.7 percent, while inflation has averaged approximately 2.6 percent.

The long-term chilled water energy contract utilized by HSWAC is similar to the contracts utilized by the affiliate companies in St. Paul, Minnesota. The contract provides the HSWAC customer long-term rate stability by establishing approximately 2/3rd of the total HSWAC customer charges through a Capacity Charge that is set in the contract for the first two years and seven months and thereafter are scheduled to increase at one-half of inflation, or 1.75 percent, whichever is the greater. Accordingly, the Capacity Charge will increase below inflation over the term of the contract.

Over the last five years, HSWAC's affiliate company has signed over 40 new customer buildings to the affiliate company's chilled water system in St. Paul, Minnesota. The table below table is a representative sample from six new customers. The project size listed in Appendix C, is confidential information and, is equivalent to the building's total interconnection cost to the chilled water system. The customer portion is the amount of the interconnection cost paid by the customer.

## *2.3* Project References

***Project Identification:***

The following are the HSWAC affiliate's chilled water customers from Section 2.2:

Customer 1 (Residential Building)
Customer 2 (Office Building)
Customer 3 (Residential Building)
Customer 4 (Residential Building)
Customer 5 (Commercial Building)
Customer 6 (Office Building)

Specific details are available upon request. It is HSWAC's company policy not to disclose customer information. We will provide the contract information relating to these projects upon request. These materials and contacts must remain confidential throughout the process.

***Contact Information:***

Specific details are available upon request. It is HSWAC's company policy not to disclose customer information. We will provide the contract information relating to these projects upon request. These materials and contacts must remain confidential throughout the process.

***Project Type:***

Each customer signed a 20-year customer service agreement for chilled water services. The contract specifies the customer demand in tons and the customer charges.

***Project Size:***

See the table in Appendix C.

***Project Dollar Amount:***

The table in Appendix C provides the total interconnection cost for the buildings and the customer portion of the interconnection costs.

***Source of Funding:***

The source of funding for the HSWAC affiliate in St. Paul, Minnesota is from revenue bond proceeds. The interconnection costs represent a small portion of the total costs to connect the customer buildings. Additional costs for the distribution system pipeline, cooling equipment and engineering were provided by the HSWAC affiliate and funded through revenue bond proceeds. For one customer, a loan was provided to cover the customer's portion of the interconnection costs.

***Project Dates:***

Confidential information regarding project dates is presented in Appendix C.

***Contract Terms:***

The contract terms for the HSWAC affiliate in St. Paul, Minnesota providing chilled water service is 20 years. The HSWAC contracts will be for a term of up to 25 years.

***Project Personnel:***

William Mahlum, President and Chief Executive Officer of HSWAC (william.mahlum@honoluluswac.com) oversees the contracting for HSWAC's affiliate in St. Paul, Minnesota.

Anders Rydaker, Chairperson of the Board for HSWAC (anders.rydaker@honoluluswac.com), is the President of HSWAC's affiliate in St. Paul, Minnesota.

Alex Sleiman, Vice President of Customer Relations for HSWAC (Toll Free Phone Number: 877.412.5961, alex.sleiman@honoluluswac.com) managed the sales effort, prepared the proposals, administered the contracts, and monitored the customer interconnections of all the listed customers for HSWAC's affiliate in St. Paul, Minnesota.

Andrew Kasid, Vice President of Finance for HSWAC (andrew.kasid@honoluluswac.com), oversees the project financing and provides support to the proposal preparation and contracting for HSWAC's affiliate in St. Paul, Minnesota.

Ingvar Larsson, Vice President of Engineering for HSWAC (ingvar.larsson@honoluluswac.com), provides engineering support for HSWAC's affiliate in St. Paul, Minnesota.

Michael Burns, Vice President of Operations and Engineering Ever-Green Energy, LLC, oversees the chilled water production for HSWAC's affiliate in St. Paul, Minnesota.

***Project Schedule:***

The projects were completed on schedule in accordance with the customer contracts.

***List of Improvements:***

All listed projects were to connect the existing buildings to HSWAC's affiliate chilled water system in St. Paul, Minnesota. The interconnections included some improvements to the buildings existing infrastructure to improve energy efficiency and improve the overall building comfort.

***Project Performance:***

The table presented in Appendix C provides confidential data listing the performance for the HSWAC affiliate's district cooling system in St. Paul, Minnesota. The capacity figure in tons compares the initial signed customer tonnage to the actual billed customer tons. The annual energy savings is a measurement of the proposed annual system costs for chilled water service as compared to on-site cooling costs. The non-energy costs are escalated at inflation and the proposed ton-hour energy usage is adjusted for changes in energy prices. The annual cost savings includes the cost difference between the actual demand charges (similar to the Capacity Charge for HSWAC) and the proposed demand charges escalated at inflation.

***Measurement and Verification:***

HSWAC will install customer billing meters to measure the HSWAC customer hourly energy usage and peak consumption in tons. This system is connected through a communications system to a metering data collection system. The meter reading data will provide the means of billing the customer charges. The HSWAC affiliate in St. Paul utilizes this system to measure energy usage and peak consumption in tons.

***Performance Guarantee:***

The customer charges for HSWAC's affiliate in St. Paul, Minnesota are outlined in the customer contracts. The customer capacity in tons is fixed for the first three years of operation and adjusted thereafter in accordance with the contract. The contracts and rate structure provide costs savings and long-term rate stability for the customers.

***Additional Comments:***

The same project team that has provided the chilled water and hot water district energy services in St. Paul, Minnesota is leading the HSWAC project in Honolulu, Hawaii. The HSWAC system is designed to provide the same long-term rate stability, costs savings and superior reliability for the customers.

## 3.0 QUALIFICATIONS

### *3.1* History and Focus of Company

3.1.1 Structure and Evolution of the Firm

**Honolulu Seawater Air Conditioning, LLC**

Honolulu Seawater Air Conditioning, LLC was founded by Ever-Green Energy, LLC, of St. Paul, Minnesota. The Hawaii limited liability company was founded to develop seawater air conditioning projects in Hawaii.

Honolulu Seawater Air Conditioning, LLC (HSWAC) is currently developing a 25,000-ton SWAC district cooling system for downtown Honolulu. This system is designed to serve buildings in the downtown core. Customer response to this project has been outstanding. HSWAC also plans to develop a similar SWAC system for Waikiki and possibly for other areas in Hawaii.

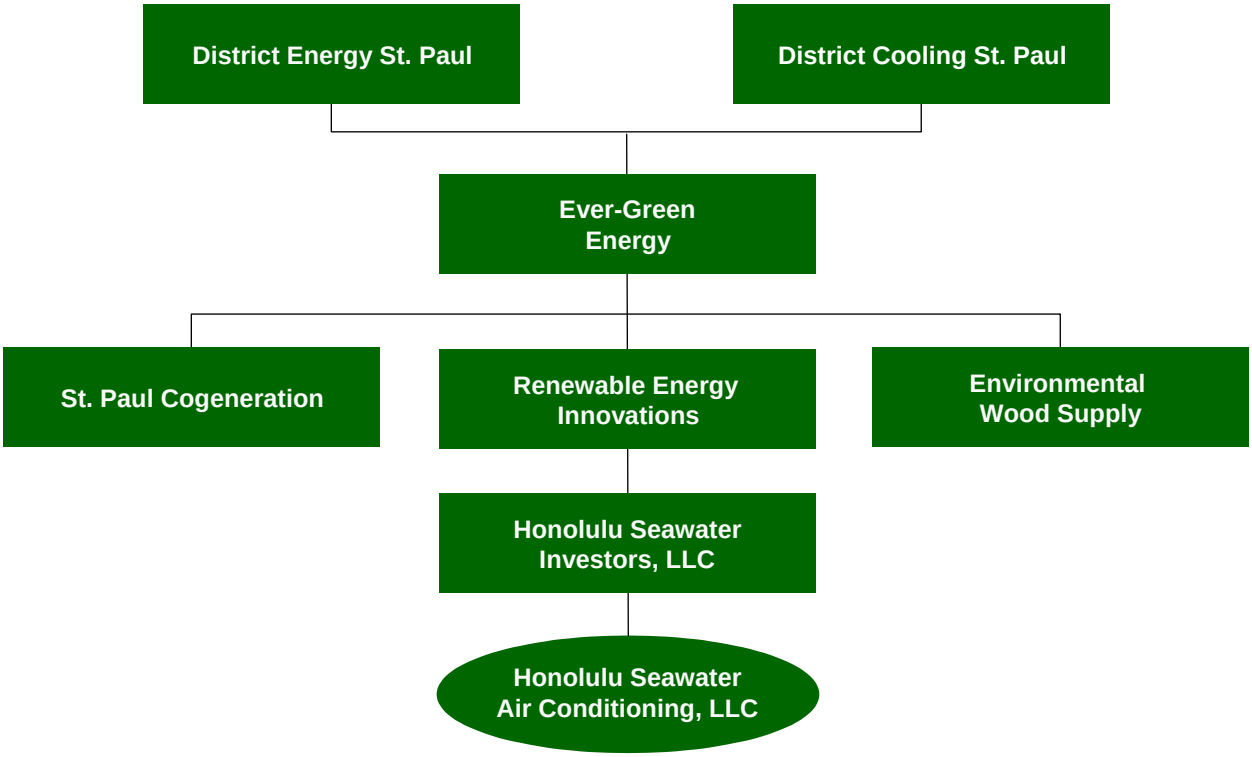
**Ever-Green Energy, LLC**

Management of the HSWAC project is provided by Renewable Energy Innovations, LLC ("REI") which is the for-profit entity wholly-owned by Ever-Green Energy, LLC ("Ever-Green Energy"). REI was established in 2005 to develop and operate renewable energy district cooling systems suitable markets outside of St. Paul, Minnesota. Ever-Green Energy is the for-profit arm of District Energy St. Paul, Inc. and District Cooling St. Paul, Inc., and is focused on the development, ownership and operation of energy generation facilities and related distribution systems that use renewable resources as their primary source of energy.

Ever-Green Energy utilizes its vast experience with creating collaborative public/private partnerships to develop energy systems that benefit its customers, the communities it serves, and the environment while providing a fair return. Ever-Green Energy team members average more than 25 years of experience developing, engineering, financing, operating and managing energy generation and distribution systems.

District Energy St. Paul, Inc. ("District Energy") and District Cooling St. Paul, Inc. ("District Cooling") are non-profit organizations, which own the district heating and cooling systems in St. Paul. The district heating system is the largest hot water heating system in North America. District heating has been operating in St. Paul since 1983 and supplies approximately 80 percent of the downtown core area (over 185 total customer buildings). District cooling has been operating since 1993 and supplies approximately 60 percent of the downtown St. Paul area (over 95 total customer buildings).

**Corporate Structure**




**Affiliate Company Background**

In the late 1970s, St. Paul and its building owners faced a major decision about how to secure a reliable energy source for the future. The concern was triggered by the second worldwide oil crisis. Much like today, energy prices were at all-time highs. Research into alternative heating methods ensued, and a proven technology that had been implemented in Sweden was chosen as the best way for St. Paul to meet its heating requirements.

District Energy was formed in 1979 as a result of a collaborative effort by public and private stakeholders including local, state and federal government representatives, community groups, the St. Paul Building Owners and Managers Association (BOMA) and the University of Minnesota. The results of this innovative, collaborative, public – private partnership remains imbedded in the company's culture, values and its mission today.

The final feasibility studies and successful marketing were completed in 1982, which culminated with the signing of 30-year customer service agreements and the successful project financing. The initial project cost was $45.8 million in 1982. The project was financed by tax-exempt revenue bonds, a city/HUD-UDAG loan, and a city equity loan.

System construction was completed one year ahead of schedule and $1.3 million under budget. The first customers received hot water service in the fall of 1983. Service was subsequently extended to a public housing complex in 1985 and a nearby industrial park in 1986.

Today, District Energy is the largest hot water district heating system in North America, and a national leader in renewable energy. Since the 1980s, expansion of the heating system has continued with growth in part funded by additional project financings and the system now serves more than 80 percent of the downtown St. Paul area, including the State Capitol Complex.

District Energy currently serves over 185 downtown area buildings and 300 individual residences. The customer base includes multi-family, commercial, industrial and large institutional structures. The system presently uses 105,900 feet of underground twin supply and return piping (up to 28 inches in diameter) circulating over 910,000 gallons of hot water.

Funding of District Energy's projects has mainly been through a mixture of fixed and variable rate tax-exempt and taxable revenue bonds backed by letters of credit. Tax-exempt funding has used both 501(c)(3) and A.M.T. revenue bonds with the A.M.T. bonds receiving allocations from the State of Minnesota tax-exempt bonding pool. Over the last 25 years, a total of $100 million has been financed by District Energy through nine financings for new construction and debt re-financings. The financing process is controlled by the in-house REI affiliate company staff.

In the late 1980s, District Cooling was organized to facilitate the expansion of the operations and services of its affiliate, District Energy, and to establish and enhance the capacity of the district energy system to provide both heating and cooling on an environmentally sound basis, both to those now served and to those who could be served by such a district energy system.

The district cooling system was financed in 1991, constructed in 1992, and began serving its eight initial customers with a total demand of 2,900 tons in the spring of 1993.

Today, the district cooling system has more than 95 customers representing more than 35,000 tons of cooling demand. Total building area served exceeds 60 percent of the St. Paul's central business district. The chilled-water distribution system totals 35,300 feet of twin supply and return piping (up to 30 inches in diameter) circulating 975,000 gallons of chilled water. The water provides air conditioning with no use of ozone-depleting chlorofluorocarbon (CFC) refrigerants.

The prospects for future District Cooling growth and system expansion remain strong. Since 1991, District Cooling has funded more than $70 million through eight financing phases to fund new construction and re-financings. District Cooling's expansion has mainly been funded through a mixture of fixed and variable rate tax-exempt and taxable revenue bonds backed by letters of credit. Tax-exempt funding has used both 501(c)(3) and A.M.T. revenue bonds with the A.M.T. bonds receiving allocations from the State of Minnesota tax-exempt bonding pool. As with District Energy, this process is directed by the internal staff.

In 2003, District Cooling successfully completed the construction of a new cooling plant and chilled water storage tank located northeast of St. Paul's central business district. The project was competed on-time and $0.4 million under budget for a total of $7.76 million. The 14,000-square-foot cooling plant incorporates a chilled water storage tank that is 90 feet high and 90 feet in diameter.

District Cooling and its architects worked with District 17's North Quadrant Advisory Committee, the St. Paul on the Mississippi Design Center, the cooling plant's nearest neighbors, city staff and other community organizations for several years to choose a site and then finalize architectural and engineering specifications for the project. Materials and colors were carefully selected to harmonize with surrounding buildings. The final design also reflects patterns and rhythms that are found in the neighborhood.

In 2004, the American Council of Engineering Companies of Minnesota (ACEC/MN) presented an Engineering Excellence Award to District Cooling and Hallberg Engineering for this project. Presented annually by ACEC/MN, the awards recognize engineering achievements which demonstrate the highest degree of merit, value and ingenuity. Entries are critiqued by a distinguished panel of judges on the basis of uniqueness and originality; future value to the engineering profession; social, economic and sustainable design considerations; complexity; and exceeding the owner's/client's needs.

In the 1990s, Ever-Green Energy's management team saw the potential to produce clean electricity efficiently. They conceived a strategy to obtain a 20-year Power Purchase Agreement for the sale of electricity generated through a renewable fueled, combined heat and power (CHP) plant. This agreement, along with a partnership with Trigen-Cinergy (now Duke Energy), contributed to the successful development of a new urban waste-wood-fired CHP facility in downtown St. Paul which began commercial operation in 2003. The $80 million CHP plant is jointly owned by Ever-Green Energy and Trigen-Cinergy Solutions under the name St. Paul Cogeneration.

Using renewable energy the CHP plant simultaneously produces 33 megawatts of electricity and up to 65 megawatts of thermal energy. The renewable electricity is supplied to Xcel Energy and the thermal energy is supplied to over 31 million square feet of building space throughout downtown St. Paul. It is the first CHP facility of its kind to provide "green energy" to a state government complex.

The Minnesota State Capitol Complex is the first in America that is heated by "green energy." Other customers include the four major downtown hospital complexes, the Warren Burger Federal Building, the City of St. Paul, Ramsey County, the Eugene J. McCarthy Post Office, the Science Museum of Minnesota, Wells Fargo Place, Xcel Energy Center, and the world headquarters of Ecolab, Travelers and Securian.

Customers have benefited from the use of an affordable, renewable energy source and the knowledge that they are using an environmentally sustainable source of "green energy" for their buildings. Development of the plant has also had significant environmental benefits. Air emissions and the production of greenhouse gases have been reduced, and it has helped the community solve a large local waste disposal problem.

Innovative application of proven technologies has been a hallmark for the companies for over 20 years. It has led to the creation of energy systems in St. Paul that are highly efficient, reliable, economical, and successfully use renewable energy to meet the energy needs of its customers, and the success story in downtown St. Paul is known around the world.

In May 2001, the energy success story in St. Paul attracted the attention of President George W. Bush. The President visited District Energy and toured its energy facilities before delivering his first major energy policy address to the nation. In his address to the nation, the President called District Energy “a model of energy efficiency, diversity and affordability,” and described us as "an early look at the future," adding that "not a bit of energy is wasted – not even the waste.”

After successfully developing its facilities in St. Paul, the company and its affiliates began reaching out to communities outside of St. Paul to help them solve their energy challenges. Using its vast experience with renewable energy sources and the creative application of proven technologies, the company is helping communities solve their energy challenges while bringing a positive return to District Energy customers through its wholly-owned subsidiaries.

**SWAC Project Experience**

Ever-Green Energy’s leadership and personnel are among the most accomplished in their field. Its president, Anders Rydaker, is a deep-water cooling pioneer. In 2003, Anders was awarded Sweden’s Prestigious Energy Prize which recognizes one or two individuals or companies who have made significant contributions toward energy conservation.

Anders, and Ingvar Larsson, another member of the Ever-Green Energy management team, were actively involved in the development of SWAC systems in Sweden. Sweden is a world leader in SWAC development. There is currently more than 65,000 tons of deep lake/SWAC in Stockholm, Sweden. Several other cities in Sweden, such as Jonkoping, Upplands Vasby, Solna, Sollentuna and Sodertalje, have SWAC systems with up to 15,000 tons of capacity.

The HSWAC project seawater engineer is Makai Ocean Engineering. Makai is a local engineering firm located on Oahu that has provided the deep water side design for the Toronto, Canada, and Cornell University air conditioning projects that are currently in operation. Makai also was the design engineer for the Natural Energy Laboratory seawater cooling project located at Kona on the Big Island. The Natural Energy Laboratory project was successfully initiated over 20 years ago and has been expanded and extended. In addition to providing the engineering for deep water air conditioning systems, Makai has provided the pipeline engineering design for water systems, sewer systems, and numerous other seawater pipeline projects.

HSWAC, Ever-Green Energy, and affiliate company staff, are experienced in all aspects of project development from concept development and feasibility analysis through engineering, permitting, marketing, financing, construction, and operation and maintenance. Our staff is experienced with energy production facilities, distribution piping systems, and customer interconnection.

## Management

The HSWAC Board of Managers consists of William Mahlum, Todd Nicholson and Steven Baker. HSWAC officers are William Mahlum, President and Chief Executive Officer, Andrew Kasid, Vice President, Ingvar Larsson, Vice President of Engineering, Alex Sleiman, Vice President Customer Relations, David Rezachek, Consultant, Scott Higa, Engineer. Matthew Matsunaga, Esq., a partner with the law firm of Schlack Ito Lockwood Piper & Elkind, Topa Financial Center, 745 Fort Street, Suite 1500, Honolulu, is Hawaii counsel.

REI officers are William Mahlum, President and Chief Executive Officer, and Anders Rydaker, Chairperson.

The Ever-Green Energy, LLC Board of Governors consists of John Taylor, Chairperson, Robert Lowe, Sr., Vice Chairperson, , Barbara Lukermann, Secretary/Treasurer, Donna Avery, Assistant Secretary, Thomas Wilkolak, Assistant Secretary and George Fremder, Assistant Secretary. Officers are Anders Rydaker, Chief Manager/President, William Mahlum, Executive Vice President & General Counsel, Ken Smith, Senior Vice President, Joyce C. Anderson, Vice President, Michael J. Burns, Vice President, Andrew Kasid, Senior Vice President, Brenda Nelson, Vice President and Alex Sleiman, Vice President

The Ever-Green Energy development team has extensive experience in conceiving, organizing, developing and initiating new district energy projects. The current Development Team, directed by Anders Rydaker and William Mahlum, includes Ingvar Larsson, engineering oversight; Andrew Kasid, finance operation; Alex Sleiman, customer relations; and the Hawaii expertise of Dr. David Rezachek.

Ever-Green Energy's professional energy managers will manage this project and be responsible for: employing and overseeing personnel to carry out day-to-day operations; maintenance; timely design and procurement of all necessary repair and replacement of equipment; marketing and customer relations; governmental relations; member communications; and all other aspects of the operation of HSWAC.

## Advisory Committee

Customers will be offered the opportunity to proportionally elect a three-member Customer Advisory Committee that will periodically meet with Honolulu-based management and, where appropriate, HSWAC Board members. The goal of the Advisory Committee is to assure customers a high level of transparency on the operation and future plans for HSWAC. The District Energy St. Paul experience has proven to enhance customer confidence and participation in the immediate and long-range development of the company. The Advisory Committee will provide customer confidence in the HSWAC operation and required operating decisions. The mutual goal is to enhance trust and confidence in securing the long-range success of the renewable energy chilled water service.

## Management Team Members

**Bill Mahlum** is the President and Chief Executive Officer for Honolulu Seawater Air Conditioning, LLC. Mahlum practiced law for 40 years, focusing on energy law, business organization, and finance for more than 25 years. He has been providing legal counsel and consulting services to District Energy and District Cooling since their formation. He was part of the development team that conceived, strategized, designed and successfully financed the capital-intensive organizations. This was done without an equity investor, using lower floater debt structure to obtain optimum financing. Mahlum was also part of the development team for St. Paul's combined heat and power plant, helping it achieve full financing. He has a wide range of additional experience working as counsel for various non-profit and for-profit entities. In addition, he has extensive experience in strategic planning, negotiating, and working with members of

Congress, state legislators, administration personnel, and various local units of government in designing, implementing and sustaining public/private partnerships.

**Anders J. Rydaker** was named president of District Energy and District Cooling in September 1993. He is also the chief manager of Ever-Green Energy. Rydaker has more than 30 years of experience in the district energy field. He is also the chairman of Honolulu Seawater Air Conditioning, LLC. A native of Sweden, he spent more than 15 years holding numerous management positions at the Uppsala power and district energy utility, which has a production capacity of more than 900 megawatts heat and 200 megawatts electricity. He also introduced district cooling to the Swedish market in the early 1990's and successfully developed the innovative cooling system for Stockholm (population 2 million) using deep lake cooling. The Stockholm system has expanded and is now the largest cooling system in Europe. In 2003, he received Sweden's Prestigious Energy Prize for the development of numerous district cooling systems in the country. Between 1983 and 1990, Rydaker provided on-site consulting service during construction of St. Paul's hot water district heating distribution system and conversion of a steam heating plant. During this time, he also initiated several energy saving projects for District Energy, including combined heat and power and development of the initial district cooling system feasibility studies. Rydaker has a B.S. in mechanical engineering from Uppsala Technical College.

**Ingvar Larsson** has over 30 years of experience in the fields of district heating, district cooling and combined heat and power in Sweden and North America. He was an employee of District Energy St. Paul in the mid 1990s and has worked as a consultant for the companies for the last ten years. Currently, he is employed directly by Ever-Green Energy as a Senior Engineer. He has extensive applied knowledge in design, construction, financial analysis and technical and business management of district energy systems. His experience includes systems within the range of 1-600 MW of heating load and 1-200 MW of cooling load. Projects he has worked on have covered a wide range of areas, including customer capacity, rate structures, building connections, distribution systems and central plants for heating and cooling. He was involved in design and commissioning of the lake water cooling system in Sodertalje which utilizes a 20,000 ft long 40-inch HDPE lake water distribution pipe. He has a B.S. in mechanical engineering from Fyrisskolan in Uppsala, Sweden and a Mechanical Engineer (M.Sc). Specialization: Heat and Power from the Royal Swedish Institute of Technology (Kungliga Tekniska Högskolan, KTH), Stockholm, Sweden.

**Andrew Kasid** has provided financial analysis to District Energy since 1990 and is the senior vice president of finance for Ever-Green Energy. He is responsible for project finance, financial analysis of business opportunities, forecasting and budgeting, energy rate analysis, energy futures contracts and analysis of energy purchases, and investment analysis and management. He has an M.B.A. in finance from the University of Minnesota's Carlson School of Management and a B.A. in financial economics from Gustavus Adolphus College, and he has earned the Chartered Financial Analyst designation.

**Alex Sleiman** has worked with District Energy customers for 25 years and is the vice president of customer relations for Market Street. Customers refer to Sleiman as "Mr. District Energy." He has more than 35 years of experience in energy management engineering, specializing in the design, specification and construction supervision of heating, ventilating and air-conditioning systems. One of Sleiman's initial responsibilities upon joining District Energy in 1983 was to develop building conversion standards for St. Paul's district heating and cooling customers. Previously he worked with communities across the State of Minnesota that were converting from steam to hot water district heating systems or exploring the development of combined heat and power systems. Sleiman has a B.S. in industrial technology from Bradley University and is a member of the American Society of Plumbing Engineers and the American Society of Heating, Refrigeration, and Air Conditioning Engineers.

**David Rezachek** is a full-time consultant to Honolulu Seawater Air Conditioning, LLC. Rezachek has more than 31 years of experience in energy and environmental systems research, design, demonstration, analysis and engineering and project management. He has been a registered professional mechanical

engineer in the State of Hawaii for more than 22 years. He has been a project manager for dozens of projects in the areas of renewable and conventional energy, energy efficiency and conservation, electric and hybrid vehicles, alternative fuels, energy and engineering education, and environmental engineering. Many of these projects involved research, development, demonstration, and commercialization of new and relatively untested technologies, systems, and concepts. He has a B.S. in Chemistry from the University of Minnesota, a B.S. in Environmental Technology and Urban Systems from Florida International University, an M.S. in Mechanical Engineering from the University of Hawaii, and a Ph.D. in Ocean Engineering from the University of Hawaii. He is the owner of, and principal consultant for, Rezachek & Associates, an international energy and environmental engineering consulting group with its base of operations located in Hawaii, USA.

**Matthew Matsunaga, Esq.**, a partner with the law firm of Schlack Ito Lockwood Piper & Elkind, Topa Financial Center, 745 Fort Street, Suite 1500, Honolulu, has from the formation of the company to the present time, competently addressed legal and regulatory matters by this internationally recognized law firm that concentrates in finance and banking law with an emphasis on the acquisition and sale of commercial real estate developments and licensing of telecommunication sites. He is a former State Senator and a certified public accountant. Matsunaga is extremely active in a wide variety of social welfare and public service organizations. Matsunaga has a J.D. degree from Georgetown University Law Center, Washington, District of Columbia, 1985, and a B.S. degree from Bucknell University, Lewisburg, Pennsylvania, 1980.

3.1.2 Years in the Energy Business.

District Energy St. Paul, Inc. ("District Energy") and District Cooling St. Paul, Inc. ("District Cooling") are non-profit organizations, which own the district heating and cooling systems in St. Paul, Minnesota. The district heating system is the largest hot water heating system in North America.

District heating has been operating in St. Paul since 1983 and supplies approximately 80 percent of the downtown core area (over 185 total customer buildings). District cooling has been operating since 1993 and supplies approximately 60 percent of the downtown St. Paul area (over 95 total customer buildings).

HSWAC was formed in 2004, and development work on the downtown Honolulu SWAC project has proceeded since the.

3.1.3 Years in Performance Contracting

HSWAC's affiliates have offered energy services involving long-term contracts, analogous to energy performance contracts, for more than 25 years.

3.1.4 Number of Performance Contracting Projects

HSWAC's affiliate District Energy and District Cooling have long-term energy contracts with over a total of 185 buildings. The annual demand revenues (similar to HSWAC's Capacity Charges) from these customers in 2007 totaled over $16.9 million and total revenues total over $28.6 million. The amount of the internal conversion costs for the customer buildings was less than $1 million for all customers.

3.1.5 Summary listing of judgments or pending lawsuits or actions against; adverse contract actions, including termination(s), suspension, imposition of penalties, or other actions relating to failure to perform or deficiencies in fulfilling contractual obligations against your firm.

None.

### *3.2* Financial Soundness and Stability of the Company

3.2.1 Financial Soundness

The $152,500,000 HSWAC chilled water district cooling system will be funded with 80% debt, or $122,000,000, and 20% equity, or $30,500,000. In December 2007, HSWAC closed on initial project funding of $10,750,000 to fund the design, engineering and development activities. The remaining project costs will be funded at the construction financing which is scheduled for December 2008. At this closing, HSWAC will issue $100,000,000 in tax-exempt Special Purpose Revenue Bonds, $22,000,000 of taxable Revenue Bonds, and will secure $19,750,000 in additional equity for a total additional funding of $141,750,000.

The authority to issue $100,000,000 in Special Purpose Revenue Bonds was received by HSWAC through three legislative actions passed in 2004, 2005 and 2007. The total $122,000,000 in Revenue Bonds will be secured by a bank letter of credit that will have a rating of not less than A/A-1 and with be secured by the chilled water system and the long-term customer contracts.

3.2.2 Profitability

The HSWAC project is currently in the design and engineering phase. Delivery of chilled water for the HSWAC customers to begin June 1, 2010. The design of the Capacity and Operating Charges and long-term customer contracts will ensure long-term financial stability for the system. The model for this system is designed after structure used by HSWAC's affiliate in St. Paul, Minnesota which was provided long-term rate stability for customer for 25 years.

3.2.3 Financial Reports

3.2.3.1 Financial statements and footnotes (audited preferred) for the Proposer for the last completed accounting year within six (6) months of June 30, 2007.

In December 2007, HSWAC closed on initial project funding of $10,750,000.

3.2.3.2 Interim financial statements for the accounting period from the last audited financial statements to February 29, 2008 if the company's year end is other than December 31st.

The following are the HSWAC financial statements (unaudited) for the period ending March 31, 2008:

**Honolulu Seawater Air Conditioning, LLC**
**Unaudited Balance Sheet**
**For the Period Ended March 31, 2008**

| Balance Sheet (000 $'s) | Mar-08 Actual |
|---|---|
| Assets | |
| Total Current Assets | $6,623 |
| Total Capitalzed Development Costs | 4,590 |
| Total Property, Plant and Equipment | 0 |
| Total Assets | $11,213 |
| Liabilities and Equity | |
| Total Current Liabilities | $405 |
| Long-Term Liabilities- | |
| Other Liabilities | 0 |
| Total Long-Term Liabilities | 0 |
| Total Liabilities | 405 |
| Equity- | |
| Equity Funding | 10,750 |
| Net Income | 58 |
| Total Equity | 10,808 |
| Total Liabilities and Equity | $11,213 |

**Honolulu Seawater Air Conditioning, LLC**
**Unaudited Statement of Income**
**For the Month Ended March 31, 2008**

| Revenues and Expenses ($ in 000's) | Mar-08 Actual | 1st Qtr Actual |
|---|---|---|
| Net Operating Revenues | $0 | $0 |
| Total Operating Expenses | 3 | 3 |
| Net From Operations | (3) | (3) |
| Net Other Income | 17 | 60 |
| Net Before Depreciation | 15 | 58 |
| Depreciation Expense & Other | 0 | 0 |
| Net Income | $15 | $58 |

**Honolulu Seawater Investors, LLC**
**Consolidated Statement of Cash Flows**
**For the Month Ended March 31, 2008**

| Statement of Cash Flows ($ in 000's) | Mar-08 Actual | 1st Qtr Actual |
|---|---|---|
| Cash Flows From Operating Activities- | | |
| Net Income | $15 | $58 |
| Depreciation, Amortization & Other | 0 | 0 |
| Changes In Operating Items | (19) | (66) |
| Cash Flows From Operating Activities | (5) | (8) |
| Cash Flows From Investing Activities | (133) | (620) |
| Cash Flows From Financing Activities | 0 | 0 |
| Cash and Temporary Investments- | (137) | (628) |
| Beginning Cash Balance | 6,760 | 7,251 |
| Ending Cash Balance | $6,623 | $6,623 |

3.2.3.3 Solvency ratios (Quick ratio, Current ratio, Current debt to equity, Debt to equity, Fixed assets to net worth, and working capital.

The HSWAC system will being providing chilled water service in June 2010. Prior to that date, the project will be in the design, engineering and construction phase.

3.2.3.4 Profitability ratios (Profit margin and Return on assets)

The HSWAC system will being providing chilled water service in June 2010. Prior to that date, the project will be in the design, engineering and construction phase.

3.2.3.5 Access to financing (Lines of credit and Letters of loan commitment).

HSWAC's affiliate company in St. Paul, Minnesota has financed over $140 million in revenue bond financings over the last 25-years and currently all revenue bonds are backed by letters of credit from a AA/A-1+ rated bank which has provided credit enhancement for the revenue bonds for over 15 years. The affiliate company also has credit lines from a AA/A-1+ rated bank which it has worked with for over 25 years. It is expected that the HSWAC project revenue bond financing will be credit enhanced through a letter of credit from these banks.

3.2.4 Bonding (Include responses to the following:)

3.2.4.1 Current bonding rating

In order to provide the interconnection of a HSWAC customer to the district cooling distribution system, HSWAC will utilize selected construction subcontractors after prequalification and bidding. A bidding requirement will be that the subcontractors shall meet or exceed the then current state bonding rating requirements. HSWAC's financing for the entire project will be financed in part by the

sale of $122,000,000 in bonds that is schedule to include credit enhancement of a Letter of Credit that will have a rating of not less than A/A-1. The recently established D-U-N-S® Number for HSWAC is 826899846.

3.2.4.2 Current bonding capacity

Current bonding capacity: $122,000,000. Please see response to 3.2.4.1 above.

3.2.4.3 Amount or percentage of bonding capacity currently obligated

100% bonding capacity currently available. Please see response to 3.2.4.1 and 3.2.4.2 above.

3.2.4.4 Current bonding rate

The anticipated bonding interest rate is 5.15%. Please see response to 3.2.4.1 and 3.2.4.2 above.

3.2.4.5 Confirmation that the company is bondable for 100% of a payment bond on a project

Respondent hereby confirms that it is bondable for 100% of a project payment bond. Please see response to 3.2.4.1 and 3.2.4.2 above.

3.2.4.6 Confirmation that the company is bondable for 100% of a performance bond on a project

Respondent hereby confirms that it is bondable for 100% of a project performance bond. Please see response to 3.2.4.1 and 3.2.4.2 above.

3.2.4.7 Letter from a licensed surety as evidence of ability to bond for payment and performance

Consistent with the Respondent's answer to 3.2.4.1 and 3.2.4.2 above, criteria for selection of a subcontractor will require evidence that the contractor or contractors will provide written evidence from a licensed surety of the ability to bond for payment and performance. Prior to entering into any agreement with a subcontractor, there will be a requirement for a 100% project payment and performance bond.

### *3.3* Industry Accreditations

HSWAC its affiliate companies are members of the International District Energy Association (IDEA), American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE), and the Council On Renewable Energy (ACORE). Membership and participation in these organizations provides HSWAC information on the latest technologies and cost information.

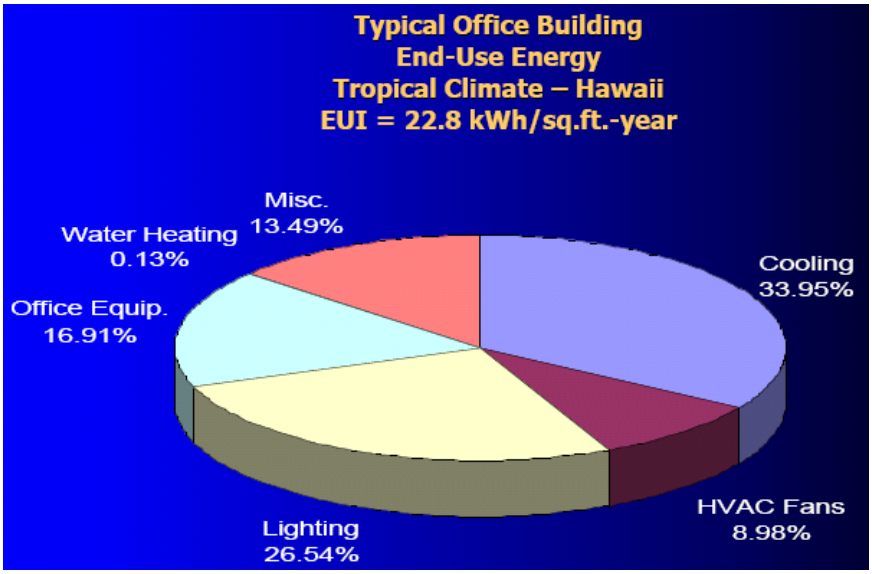
HSWAC’s affiliate companies in St. Paul, Minnesota have extensive experience working with the Federal, State and local government in long-term energy contracts. Among the buildings that have signed long-term heating and cooling energy contracts includes the Warren Burger Federal Building, the Eugene J. McCarthy U.S. Post Office, the State of Minnesota Capitol Complex and the Ramsey County Courthouse/City Hall (see section 2.1). This long-term relationship with these government building

customers have provided us invaluable experience on how to best meet their financial, budgeting and heating and cooling needs.

### *3.4* General Scope of Services

As stated previously, HSWAC's primary area of expertise is providing SWAC district cooling to a variety of customers. And, as the single largest end use of energy in office buildings, air conditioning energy use should be addressed first.

The following figure shows the amount (%) of energy used, by end use, for a typical office building in Hawaii. The largest single energy use is for cooling (air conditioning). The second largest end use is for lighting. This strongly suggests that any ESCO should consider these end uses first when identifying energy conservation measures.




Typical Office Building End-Use Energy – Tropical Climate (Hawaii)
[Source: HECO (http://hawaii.gov/dbedt/ert/rebuild/minutes/May03Presentations/Benchmarking.pdf)]

Lighting energy use is often addressed first by most ESCOs. It represents a large end use and there are a number of ECMs that are available to reduce lighting energy use at a relatively low cost. Unfortunately, for many buildings (including many State buildings) this "low hanging fruit" has already been harvested. Many buildings do not have much additional energy savings potential in the lighting end use category.

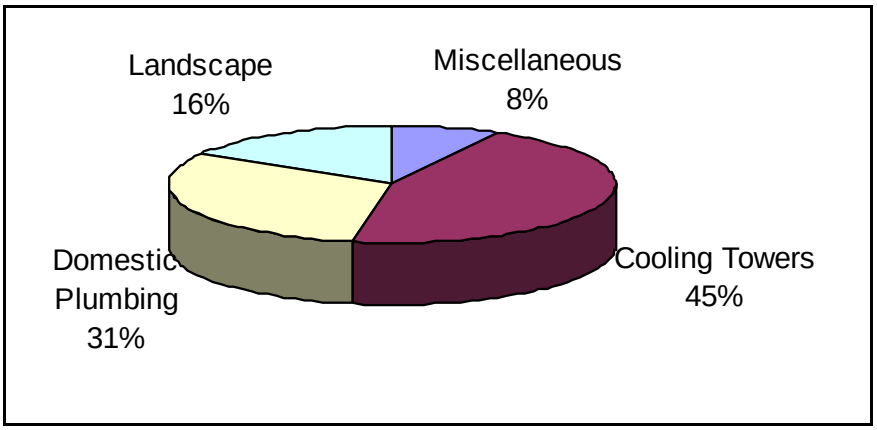
However, many buildings have older, energy-inefficient cooling systems that need to be replaced. But even more efficient chillers might provide only 10 to 20% reductions in cooling energy use, and chiller and cooling tower replacement is very expensive.

On the other hand, connecting to a SWAC system will cost customers little, or nothing, and will reduce a building's energy use for cooling by 77%. This is equivalent to reducing total building energy use by more than 26%, or by as much energy as is used by lighting.

A building owner would have to reduce all energy use, other than cooling, by 40%, to equal the energy savings provided by SWAC. It is therefore very likely that SWAC will provide energy savings that are greater than all other ECMs, for all other end uses, combined.

Furthermore, SWAC eliminates the need for cooling towers. This reduces potable water use, reduces sewage generation, and eliminates the need for water treatment chemicals for cooling water.

The following figure shows water use in commercial buildings by end use. It has been corrected for increased cooling tower utilization in Hawaii.




Commercial Office Building Water Use
[Source: *AWWA Journal*, October 1992, Table 1, pages 68-69]

Again, by eliminating cooling towers, SWAC has the greatest potential for reducing water use in commercial buildings. SWAC would be able to eliminate 45% of total water use. Building owners would have to reduce water use for all other end uses by nearly 82% to provide water use savings equivalent to SWAC. Again, it is therefore very likely that SWAC will provide water savings that are greater than all other water efficiency measures, for all other end uses, combined.

So, while HSWAC as an ESCO would focus primarily on air conditioning ECMs, the end result of this focus would be energy and water savings that are likely to exceed all other ECMs and water efficiency measures recommended by other ESCOs.

However, HSWAC is willing, and prepared, to partner with other ESCOs and energy efficiency subcontractors to provide a wider variety of ECMs that will only enhance the savings already provided by SWAC.

### 3.4.1 Energy systems in buildings

#### 3.4.1.1 Lighting systems: indoor and outdoor

HSWAC does not perform lighting retrofits, but would partner with others to provide lighting ECMs that will only enhance the savings already provided by SWAC.

#### 3.4.1.2 Daylighting

Daylighting can be used to save energy for lighting and to reduce heat gain and cooling load requirements. However, HSWAC does not utilize daylighting.

#### 3.4.1.3 Heating systems

HSWAC personnel have extensive experience with heating systems. However, there is little or no heating requirement in Hawaii.

#### 3.4.1.4 Ventilation systems

HSWAC personnel have extensive experience with ventilation systems as related to district heating and cooling systems.

3.4.1.5 Indoor air quality

Use of SWAC will allow increased building ventilation at a lower cost, which would improve indoor air quality, owing to lower operating costs with SWAC.

3.4.1.6 Cooling systems

HSWAC personnel have extensive experience with district cooling systems and cooling systems within customer buildings.

3.4.1.7 Control and building automation systems

Use of SWAC simplifies control and building automation systems and can provide a control signal which can be used as an input to such systems.

3.4.1.8 Water-consuming systems

SWAC will eliminate cooling towers and the largest single use of potable water in office buildings.

3.4.1.9 Solid waste, e.g., paper, plastic, glass, aluminum, recycling

HSWAC does not generally address this area but could partner with an expert in the field.

3.4.1.10 Renewables (solar-electric, solar thermal, geothermal, wind, biomass)

SWAC uses an infinite, renewable energy resource to provide more than 90% of the cooling. HSWAC personnel also have extensive experience with other renewable technologies.

3.4.1.11 Distributed generation

SWAC is a distributed generation technology placed near the end user and, as such, reduces transmission and distribution energy losses from the electric grid.

3.4.1.12 Central plants

District energy systems involve large central plants to produce heating and cooling. HSWAC personnel are very experienced in the design and operation of central plants.

3.4.1.13 Kitchens, laundry

With the exception of cooling loads for such facilities, HSWAC does not generally address this area but could partner with an expert in the field.

3.4.1.14 Laboratories, laundry

With the exception of cooling loads for such facilities, HSWAC does not generally address this area but could partner with an expert in the field.

3.4.1.15 Swimming pools and recreational facilities

HSWAC personnel have extensive experience in serving recreational facilities in St. Paul.

3.4.1.16 Fuel switching

SWAC is a fuel switching technology. Infinitely renewable cold seawater is substituted for fossil fuel generated electricity to provide space cooling.

3.4.1.17 Energy management

HSWAC personnel have extensive experience in large-scale energy management (district cooling) systems. These systems are operated to provide optimum efficiency.

3.4.1.18 Transportation – fleet fuel management, etc.

HSWAC does not generally address this area but could partner with an expert in the field.

3.4.2 Project Development and Implementation

3.4.2.1 Energy auditing (identify potential energy-saving measures, determine savings projection based on standard energy engineering principles; estimate project costs; present package of measures with cash flow)

As part of its marketing, HSWAC conducts energy audits of all of its customers' facilities to determine savings; estimate costs; and determine cash flows.

3.4.2.2 System design engineering: mechanical, electrical, etc.

HSWAC personnel have extensive system design capabilities and have designed and operated several large district energy systems, including seawater and lake water cooling systems.

3.4.2.3 Procurement, bidding

HSWAC personnel have considerable experience in procurement and bidding associated with design and operation of several large district energy systems.

3.4.2.4 Construction

HSWAC personnel have constructed several large district energy systems, including seawater and lake water cooling systems.

3.4.2.5 Commissioning of projects and retro-commissioning of existing buildings

HSWAC personnel have commissioned and retro-commissioned large scale district energy systems and have assisted customers with commissioning and retro-commissioning their heating and cooling systems.

3.4.2.6 Project management

HSWAC personnel have extensive project management experience associated with several large district energy systems, including seawater and lake water cooling systems.

3.4.2.7 Identification of asbestos and other hazardous materials and abatement, recycling or disposal as applicable

HSWAC personnel have had some experience in this area and could partner with an expert in the field to enhance these capabilities.

3.4.3 Continuing Support Services (Post Construction)

3.4.3.1 Performance guarantee for every year of the financing term

District energy systems operated by HSWAC personnel have reliabilities >99.9%. SWAC costs will be equal to, or less than, conventional costs throughout the system life.

3.4.3.2 Insurance

The following table is a summary of relevant insurance coverage:

| Honolulu Seawater Air Conditioning, LLC | | |
|---|---|---|
| **Coverage** | **Limits** | **Insurer** |
| Worker's Compensation | $1,000,000 Each Accident<br>$1,000,000 Policy Limits<br>$1,000,000 Each Employee | Hawaii Employers Mutual Ins. Co. |
| General Liability | $1,000,000 Each Occurrence<br>$2,000,000 General Aggregate<br>$2,000,000 Prod/Comp Ops Aggregate | Travelers Property Casualty |
| Automobile | $1,000,000 Hired & Non-Owned Only | Travelers Property Casualty |
| Umbrella | $1,000,000 | Travelers Property Casualty |
| Excess Umbrella | $10,000,000 | Chubb Group of Ins. |



3.4.3.3 Equipment and material warranties

Third-party warranties from the equipment providers for the building conversion to the HSWAC system will be passed on to the customer.

3.4.3.4 Financing partner with ability to provide a municipal, tax-exempt lease purchase

HSWAC will work with the customer to secure financing. HSWAC has long-term banking relationships through it’s affiliate companies.

3.4.3.5 Hazardous material handling

HSWAC will handle any hazardous materials according to applicable laws, regulations, and standard practices.

3.4.3.6 Measurement and verification of savings

HSWAC personnel have extensive experience in determining baseline energy and water use and in measuring energy and water savings during SWAC system operation.

3.4.3.7 Training: maintenance staff and occupants

There is no need for occupant training. HSWAC will provide any necessary training for client staff and HSWAC personnel will be available to provide assistance.

3.4.3.8 Long-term maintenance services on energy systems

HSWAC will provide long-term maintenance services on the SWAC system and will assist facility owners in contracting for maintenance services within their buildings (see 1.3.8).

3.4.3.9 Application for an Energy Star Label and LEED certification

Connecting to a SWAC system will significantly improve building performance ratings. HSWAC will assist facility owners in applying for Energy Star and LEED certification.

3.4.3.10 Calculation and reporting of emissions reductions

HSWAC has conducted a detailed analysis of potential emissions reductions using SWAC and will be able to calculate and report emissions reductions for each customer.

3.4.3.11 Assistance to the facility owner with preparing annual reports for the Hawaii Energy Performance Contracting Program

HSWAC will be able to provide overall SWAC, and individual building, performance and cost data and will assist facility owners in preparing annual reports.

## 4.0 TECHNICAL APPROACH

### *4.1 Samples: Preliminary Technical Energy Audit (TEA) and Final Investment Grade Audit (IGA)*

Appendix B is a sample HSWAC Comprehensive Air Conditioning Audit. The Comprehensive Audit provides a cost comparison of the on-site cooling equipment costs as compared to the HSWAC service. The audit reviews the building's energy control management system data, electric data and cooling system operations (see also section 4.3). Meetings are conducted with maintenance staff building management personnel to verify the mode of operation and building requirements. The Comprehensive Audit is provided to the potential HSWAC customer at no charge.

### *4.2 Standards of Comfort*

The HSWAC system designed to provide chilled water cooling to meet and exceed the customer cooling needs at the design condition of 88 degrees Fahrenheit dry bulb and 73 degrees Fahrenheit wet bulb. The system will supply 44 degrees Fahrenheit chilled water to the building 24 hours per day, 365 days per year. The system is designed to have a reliability of 99.99% or higher.

### *4.3 Baseline Calculation Methodology*

The methodology used to determine a building's baseline cooling requirements is based on an analysis of data listed below as available from the building energy management system, log sheets, discussions with building management personnel, etc. and paired a review of the system cooling data, electric data, customer usage patterns, water usage, equipment specifications, cooling tower cycles, building type and size, occupancy, cooling usage patterns, maintenance staff interviews, review of maintenance cost information along with knowledge from our extensive experience from operating district energy systems:

- present electricity cost and usage;
- cooling usage pattern;
- installed cooling equipment capacity, age, status, and performance;
- utilized cooling capacity;
- usage of heat pumps for domestic hot water (if any);
- cooling equipment efficiency;
- water and chemical usage for cooling towers and blow-down to sewers;
- maintenance and service records and bills for the cooling equipment;
- location of cooling equipment;
- building type and size; and occupancy.

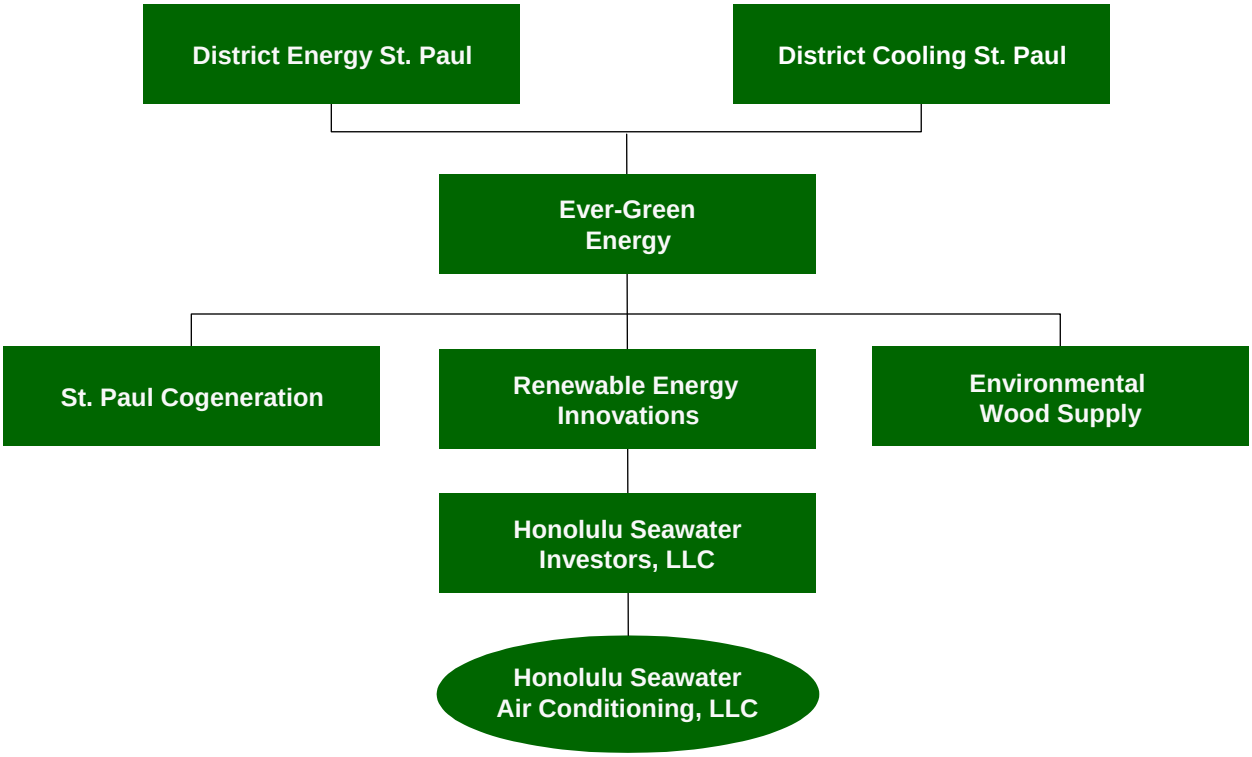
### *4.4 Adjustments to Baseline*

Adjustments to the baseline calculations may include adjustments to the cooling capacity in tons for changes in building operation, building remodeling, conditioned space changes and energy conservation projects.

# 5.0 MANAGEMENT APPROACH

## *5.1* Project Management and Coordination

### *5.1.1* Organizational Structure




HSWAC is wholly owned by Honolulu Seawater Investors, LLC, a Delaware limited liability company. Renewable Energy Innovations, LLC (REI) manages HSWAC and is wholly owned by Ever-Green Energy, LLC, a Minnesota limited liability company (formerly Market Street Energy Company, LLC), which is owned by District Energy St. Paul, Inc., a Minnesota non-profit corporation, and District Cooling St. Paul, Inc., a Minnesota non-profit corporation (see section 3.1.1 for further information).

The Ever-Green Energy development team has extensive experience in conceiving, organizing, developing and initiating new district energy projects. The current Development Team, directed by Anders Rydaker and William Mahlum, includes Ingvar Larsson, engineering oversight; Andrew Kasid, finance operation; Alex Sleiman, customer relations; and the Hawaii expertise of Dr. David Rezachek.

Ever-Green Energy's professional energy managers will manage this project and be responsible for: employing and overseeing personnel to carry out the day-to-day operation of the company; maintenance; timely design and procurement of all necessary repair and replacement of equipment; marketing and customer relations; governmental relations; member communications; and all other aspects of the operation of HSWAC.

### *5.1.2* *Local Staffing and Support*

HSWAC is a Honolulu, Hawaii-based company. HSWAC will be able to utilize additional professional services provided by Ever-Green Energy, and its affiliates, in St. Paul, Minnesota.

District cooling systems are very reliable. The St. Paul district cooling system has a reliability of 99.99%. A similar reliability is anticipated for SWAC systems in Hawaii. HSWAC has a commitment to a rapid response on a 24/7 basis. HSWAC will have people on 24-hr call service. Customers can call them.

HSWAC Project operations consist of providing customers with seawater air conditioning service; maintaining the HSWAC system; and managing customer relations.

**Staffing**

The staffing of the HSWAC business will include the following 9 positions:

- On-site Manager;
- Office Assistant;
- 2 Customer Service representatives; and
- 5 Plant and Distribution Operators

**System Operation**

The operation of the HSWAC system is simple in the sense that the equipment mainly encompasses pipes, pumps, heat exchangers and chillers. Piping and heat exchangers need no direct operational considerations and the operation of pumps and chillers will be fully automated through a plant control system.

The plant will only be staffed during weekday office hours. During other periods, the staff will be on-call to respond to alarms generated by the plant control system or to phone calls from the customers.

A link from HSWAC's control system to Ever-Green Energy's 24/7 staffed control room in St. Paul will be established. The link will be used for supervisory and quality control support from Ever-Green Energy's experienced operations personnel.

**System Maintenance**

Daily system maintenance will be performed by the HSWAC staff. Larger, scheduled maintenance work, such as annual chiller overhaul, will be contracted out and supervised by the HSWAC staff. Contracts will be established with local contractors to ensure the ready availability of pipe fitters, etc. in case of emergency maintenance and repair.

To minimize emergency maintenance and repair — Ever-Green Energy's existing preventive maintenance database will be utilized for the HSWAC Project and the HSWAC staff will access the database to schedule preventive maintenance.

**General and Administration**

A large part of the success behind Ever-Green Energy's district heating and cooling systems in St. Paul is the exemplary customer service provided. HSWAC will employ two people directly responsible for the customer relations and services. However, the on-site manager and the office assistant will be a large part of the customer service effort.

The on-site manager, apart from handling the day to day operations of the company, will also be responsible for maintaining excellent relationships with officials from the city and state governments.

Remote meter reading will be utilized and billing will be performed by the Ever-Green Energy's accounting office in St. Paul, Minnesota.

**Skill Requirements**

The skill requirements are available on the island. For the plant and distribution operation, navy or building engineers will be applicable. Special requirements, such as state and federal refrigerant licensing, will not be necessary because the chiller maintenance will be contracted out.

The lead customer service and relations position will be a seasoned HVAC engineer with previous contacts with Honolulu's building owners, managers and engineers. The other customer service position can be filled by another HVAC engineer.

### *5.1.3 Approach to Subcontracting*

Ever-Green Energy and HSWAC personnel will manage and operate the HSWAC district cooling system as described above. Other professional and construction services will be contracted by HSWAC using a competitive bidding process as described under 6.4.

## *5.2* Personnel and Staffing

See section 3.1, for a description of the roles, background, and experience of the management team during the development stage of the HSWAC Project. These individuals, as well as local contractors being used for HSWAC project development, have extensive experience in project development. See section 5.1.2, above, for a general description of personnel and staffing during the operational phase of the HSWAC Project. While the identities of the individuals who will be staffing the project during its operational phase are not known at this time, the skill requirements are available on the island.

| Name | Title | Staff or Subcontractor | Potential Role | Academic/ Professional Qualifications | Level of Expertise | Base Location |
|---|---|---|---|---|---|---|
| William Mahlum | President and CEO | Staff | CEO &Legal Counsel | Jurisprudence | 40 years | St. Paul |
| Alex Sleiman | Vice President Customer Relations | Staff | Customer Service | Energy Management Engineering | 35 years | Honolulu |
| Ingvar Larsson | Vice President Engineering | Staff | Technical Building Review | Mechanical Engineering | 30 years | Honolulu |
| David Rezachek | Engineering Consultant | Consultant | Building Audit | Ocean & Mechanical Engineering | 31 years | Honolulu |
| Scott Higa | Engineer | Staff | Proposal and Audit Writer | Engineer | 10 years | Honolulu |
| Andrew Kasid | Vice President Finance | Staff | Financial Analysis | Finance | 23 years | St. Paul |
| Frederic Berg | Consultant | Consultant | Office Manager | Engineer / Finance | 25 years | Honolulu |

## 6.0 MAXIMUM FEES

### *6.1* Mark-up

HSWAC will oversee the interconnection of the customer buildings to the chilled water system with no mark-up on costs for buildings that are included in the contract associated with the RFP. The interconnection construction will be done by selected construction subcontracts after the RFP prequalification and RFP bidding.

| **MARK-UPS** | | |
|---|---|---|
| ***CATEGORY OF MARK-UP*** | ***MARK-UP APPLICATION*** | ***% MARK-UP*** |
| Overhead | Building Interconnection | 0% |
| Profit | Building Interconnection | 0% |
| Labor – Internal | Building Interconnection | 0% |
| Equipment Purchased | Building Interconnection | 0% |
| Materials Purchased | Building Interconnection | 0% |
| Subcontract Labor | Building Interconnection | 0% |
| Subcontract Material | Building Interconnection | 0% |

HSWAC will oversee the interconnection of the customer buildings to the chilled water system included in the contract associated with the RFP. No HSWAC labor charges will be added for this service.

### *6.2* Fees

HSWAC will oversee the interconnection of the customer buildings to the chilled water system included in the contract associated with the RFP. No HSWAC labor charges will be added for this service. HSWAC has already performed the analysis for of the cooling requirements, cooling costs and interconnection costs for the potential customer buildings at no cost for the potential customers. HSWAC will work will the potential customer buildings to arrange financing and will not add a labor cost for this service.

| **FEES** | | |
|---|---|---|
| ***CATEGORY OF FEE*** | ***HOW DETERMINED AND USED*** | ***YEARS APPLIED (One-time, Annual, etc.)*** |
| Investment Grade Energy Audit and Project Development | HSWAC has already performed a cooling requirements analysis for the potential customers | One time |
| Solicit & Evaluate Project Financing Proposals | HSWAC will work with the customer to secure financing at no additional labor cost | |
| Design | Design of the interconnection will be bid at the time of the RFP | |

| | | |
|---|---|---|
| Contingency | Depends on the scope of work | |
| Permits | No additional markup from HSWAC | |
| Performance Bond | No additional markup on the performance bond | Prior to start-up to commercial operation |
| Project Management | HSWAC will oversee the interconnection of the customer buildings at no additional cost | Prior to start-up through commercial operation |
| Commissioning | HSWAC staff will oversee the commissioning of the cooling service at no additional cost to the building owner | System start-up |
| Training | HSWAC will provide annual training seminars for the building operating personnel at no cost | Annual |
| Monitoring and Verification | HSWAC provides metering of the customers energy usage as part of the HSWAC service | Metered data provided with the monthly service |
| Warranty Service | To be determined per the interconnection installation | |
| Maintenance on Installed Measures | HSWAC will provide on-going reporting at no cost to the customer | Annual |

### *6.3 Contingency*

The typical contingency for the chilled water district cooling interconnection cost ranges from 15 to 20 percent depending on the scope of work. Unused contingency is typically reduced from the customer's total interconnection costs.

### *6.4 Equipment/Labor Cost Competition*

Bids on equipment/labor are solicited through a competitive bidding process with more than two bidders, as available. The successful equipment/labor bidder is selected based on price, experience and performance.

### *6.5* **Open Book Pricing**

HSWAC has an open book pricing approach for the costs associated with the buildings interconnection to the HSWAC chilled water system. All costs will be recorded at their invoiced amounts and copies of all invoices will be provided to the customer.

# Exception No. 1

**Reference:**

REQUEST FOR PROPOSALS NO RFP-08-022-SW -
Section 2.2 Project Summary; Section 2.3 Project References; Section 3.1.3 Years in Performance Contracting; Section 3.1.4 Number of Performance Contracting Projects; and Section 4.1 Samples: Preliminary Technical Energy Audit (TEA) and Final Investment Grade Audit (IGA)

**Exception Requested:**

The types of energy services contracts utilized by Ever-Green Energy and HSWAC do not strictly match the definition of Energy Services Contract, as defined in the subject RFP. However, these contracts are analogous to, and have all of the required elements of, Energy Performance Contracts.

HSWAC requests that DAGS allow HSWAC to substitute their long-term contract approach and contracts, project experience, and associated references as necessary in their response to this RFP.

**Justification for Exception:**

- HSWAC was founded by Ever-Green Energy, LLC, of St. Paul, Minnesota, to develop renewable energy seawater air conditioning projects in Hawaii.
- Ever-Green Energy team members are experienced leaders when it comes to energy conservation and the efficient conception, design, operation and management of renewable energy systems.
- HSWAC's affiliate company in St. Paul, Minnesota has provided heating services through long-term energy contracts to downtown St. Paul and surrounding area since 1983.
- HSWAC's affiliate company in St. Paul, Minnesota has provided cooling services through long-term energy contracts to downtown St. Paul and surrounding area since 1993.
- The long-term chilled water energy contract utilized by HSWAC is similar to the contracts utilized by the affiliate companies in St. Paul, Minnesota.
- The contract terms for the HSWAC affiliate in St. Paul, Minnesota providing chilled water service is 20 years. The HSWAC contracts will be for a term of up to 25 years.
- HSWAC customers contract for the SWAC cooling service by signing long-term agreements that will assure the delivery of chilled water. The agreement has Uniform Provisions for all customers addressing the general conditions including the measurement of energy usage, the costs associated with the service, and the assurance of the reliable delivery of chilled water.
- HSWAC's pricing strategy is to establish an HSWAC customer cost at, or less than, the avoided cost level as a very strong attraction to switch from unstable cooling costs to stable cooling costs. The strategy is simple - dramatic cost savings with very stable pricing.
- Customer capital costs for possible upgrades or necessary replacements are eliminated.

- HSWAC, Ever-Green Energy, and affiliate company staff, are experienced in all aspects of project development from concept development and feasibility analysis through engineering, permitting, marketing, financing, construction, and operation and maintenance. Our staff is experienced with energy production facilities, distribution piping systems, and customer interconnection.

- HSWAC's affiliates have offered energy services involving long-term contracts, analogous to energy performance contracts, for more than 25 years.

- HSWAC's affiliate District Energy and District Cooling have long-term energy contracts with over a total of 185 buildings.

- HSWAC's approach to contracting, and the associated long-term contracts, have all of the required elements of Energy Performance Contracts:

    - Project development
    - Energy auditing
    - Performance/Savings guarantee
    - Third party financing and access to financing
    - Construction by ESCO
    - Commissioning
    - Measurement and verification
    - Client staff/Occupant training
    - Post-construction maintenance support
    - Substantial energy, other resource, and cost savings over the life of the contract
    - Payback period of less than the contract duration
    - No net cost to the client
    - Experienced and qualified management and support personnel
    - Financial soundness, fiscal stability, and profitability of the ESCO
    - Ability to fulfill contractual obligations
    - Industry accreditation
    - Experience in both construction and operation
    - Experience in energy and other resource efficiency measures and renewable energy technologies

**Conclusion:**

For all of the above reasons, HSWAC should be granted this exception.

# Exception No. 2

**Reference:**

ADDENDUM D TO PROPOSAL NO RFP-08-022-SW -
Answer to Question 9, page 5

**Exception Requested:**

DAGS has stated an apparent preference for ESCOs that can provide a portfolio of energy efficiency, other resource efficiency, and renewable energy services. HSWAC's primary area of expertise is providing SWAC district cooling to a variety of customers.

HSWAC is requesting that DAGS grant it status as a pre-qualified ESCO that provides renewable energy-based, energy and resource efficient cooling services with the ability to partner with other ESCO's and subcontractors that can supplement these services.

**Justification for Exception:**

- Air conditioning is the largest single energy end use in office buildings, as such, it should be addressed first.

- The second largest end use is lighting and lighting is often addressed first by most ESCOs. Unfortunately, for many buildings (including many State buildings) this "low hanging fruit" has already been harvested. Many buildings do not have much additional energy savings potential in the lighting end use category.

- Many buildings have older, energy-inefficient cooling systems that need to be replaced. But even more efficient chillers might provide only 10 to 20% reductions in cooling energy use, and chiller and cooling tower replacement is very expensive.

- Connecting to a SWAC system will cost customers little, or nothing, and will reduce a building's energy use for cooling by 77%. This is equivalent to reducing total building energy use by more than 26%, or by as much energy as is used by lighting.

- A building owner would have to reduce all energy use, other than cooling, by 40%, to equal the energy savings provided by SWAC. It is therefore very likely that SWAC will provide energy savings that are greater than all other ECMs, for all other end uses, combined.

- SWAC eliminates the need for cooling towers. This reduces potable water use, reduces sewage generation, and eliminates the need for water treatment chemicals for cooling water.

- By eliminating cooling towers, SWAC has the greatest potential for reducing water use in commercial buildings. SWAC would be able to eliminate 45% of total water use.

- Building owners would have to reduce water use for all other end uses by nearly 82% to provide water use savings equivalent to SWAC.

- It is therefore very likely that SWAC will provide water savings that are greater than all other water efficiency measures, for all other end uses, combined.

- So, while HSWAC as an ESCO would focus primarily on air conditioning ECMs, the end result of this focus would be energy and water savings that are likely to exceed all other ECMs and water efficiency measures recommended by other ESCOs.

- HSWAC's primary area of expertise is providing SWAC district cooling to a variety of customers. However, HSWAC is willing, and prepared, to partner with other ESCOs and energy efficiency subcontractors to provide a wider variety of ECMs that will only enhance the savings already provided by SWAC.

- HSWAC personnel have considerable experience in the following areas, and can use this experience to develop an excellent portfolio of energy efficiency, other resource efficiency, and renewable energy services:

    - Ventilation systems
    - Indoor air quality
    - Cooling systems
    - Control and building automation systems
    - Water-consuming systems
    - Renewables
    - Central plants
    - Recreational facilities
    - Fuel switching
    - Energy management
    - Project development and implementation
    - System design engineering: mechanical , electrical, etc.
    - Procurement, bidding
    - Construction
    - Commissioning and retro-commissioning of existing buildings
    - Project management
    - Continuing support services (post construction)
    - Insurance
    - Equipment and materials warranties
    - Financing partner
    - Measurement and verification of savings
    - Training
    - Long-term maintenance services on energy systems
    - Familiarity with LEED and Energy Star certification
    - Calculation and reporting of emissions
    - Assisting customers in report preparation

**Conclusion:**

For all of the above reasons, HSWAC should be granted this exception.

# Appendix A

# Additional Information About Seawater Air Conditioning (SWAC) District Cooling and the Downtown Honolulu SWAC System

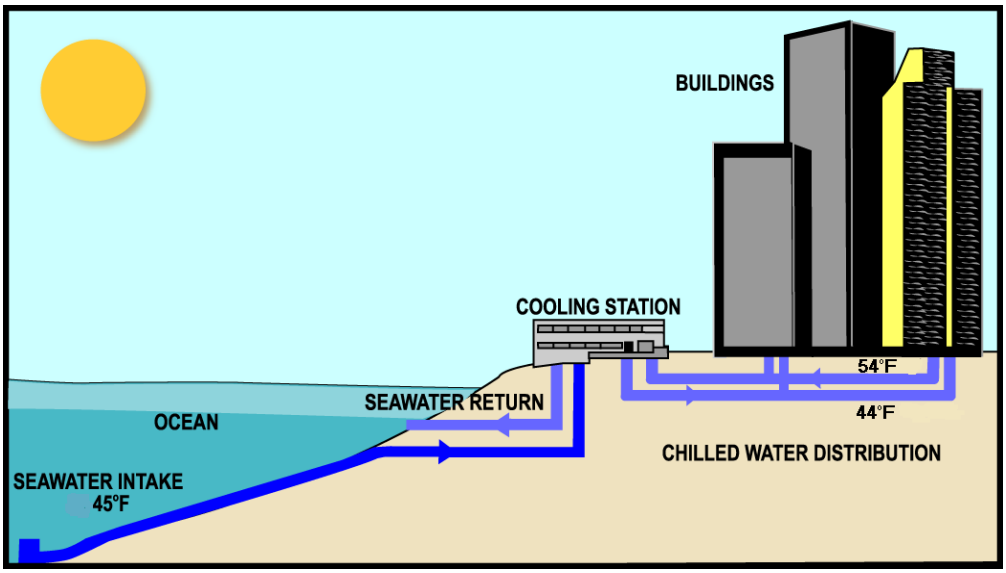
Honolulu Seawater Air Conditioning, LLC, ("HSWAC") is developing a 25,000-ton seawater air conditioning district cooling system for downtown Honolulu. This renewable energy system is designed to cool buildings in the downtown core using deep ocean cold water. A seawater air conditioning system is a cost-effective and attractive "green energy" investment, and a smart way to use renewable energy for air conditioning.

**Why Seawater Air Conditioning?**

- Stable, less expensive air conditioning cost
- Air conditioning from renewable "green energy"
- Eliminates air conditioning refrigerants, potable water, sewer and chemical usage and reduces air conditioning energy use
- Convenient, reliable cooling service

**What is Seawater Air Conditioning?**

Seawater air conditioning (SWAC) uses only the cold from the water, not the actual water. Cold, deep seawater is pumped through a distribution pipeline to a cooling station on shore. For the Honolulu SWAC Project, the intake pipe is located at a depth of 1,600 feet where the water temperature is 45° F year round. The cooling station has chillers to assure uniform 44° F temperature delivered to customers. The cooling station transfers the seawater's coldness to water circulating in a closed loop pipe system (district cooling system) that provides air conditioning service to customer buildings. The cooling station ensures that the seawater and fresh water never mix. Warmed seawater is returned to the ocean through a diffuser located at a shallower depth where zone of mixing requirements are satisfied.



SWAC is a renewable energy system that uses the cold water from the deep ocean to cool buildings. Conventional air conditioning systems consume four to 12 times more electricity than equivalent SWAC systems. A SWAC system is a cost-effective and attractive green-energy investment, and a smart way of using renewable energy for air conditioning.

A SWAC system is suitable for coastal developments with large air conditioning demands and reasonable access to deep, cold seawater. The main factors that influence the economic viability of a SWAC system are:

- distance offshore to cold water in the 45˚F range;
- size and concentration of the air conditioning load;
- utilization of the air conditioning system; and
- local cost of electrical power, water and sewer.

Basic components of a SWAC system include:

- a seawater supply distribution system, including the intake pipe, pumps and return pipe;
- heat exchangers that transfer cold from the seawater in the seawater distribution network to the fresh water distribution network (the heat exchangers ensure that the seawater and fresh water never mix); and
- a closed loop, fresh water distribution network, including pumps (this network provides chilled water that circulates through each building).

SWAC systems have been providing chilled water services for over ten years using a proven technology that has been used for many years in seawater pipelines for seawater desalination systems and sewer systems. SWAC systems are in operation in the U.S., Canada and Sweden and have achieved impressive economic and environmental results.

**What is a District Cooling System?**

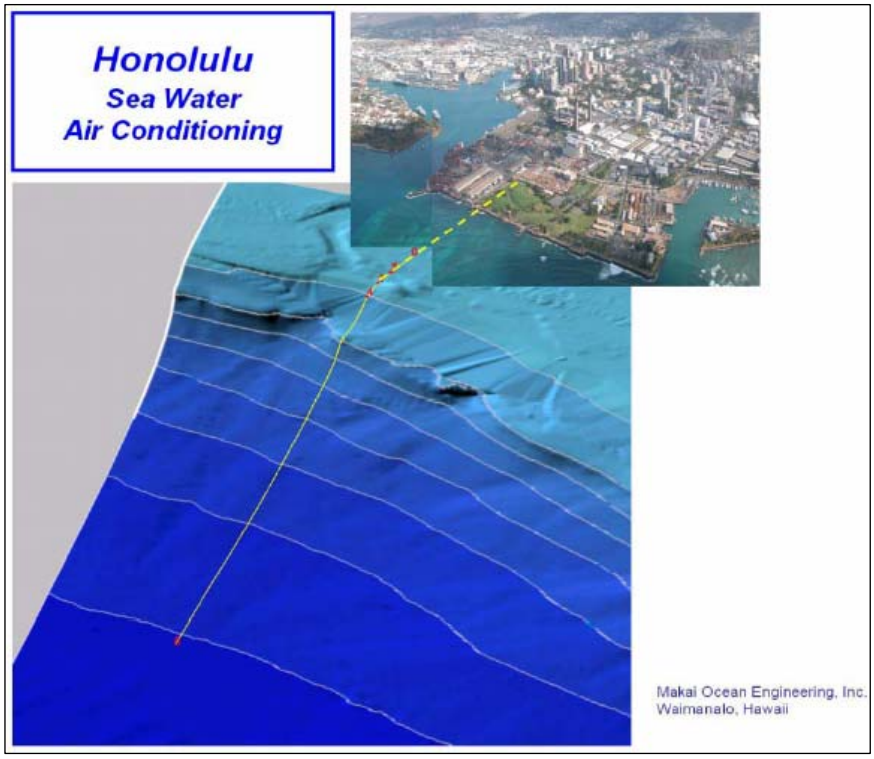
A district cooling system produces chilled water from a central plant and then pipes that energy out to a group of buildings in the area or district for air conditioning purposes. Individual buildings don't need their own chillers. A district cooling system does that work for them.

Heating and cooling public spaces for people to assemble for work, entertainment and home life has been a challenge for the human race since the beginning of time. District energy was developed in ancient Rome to deliver hot water or steam heat to its structures. In the nineteenth century, the technology was perfected in Europe to meet the heating needs of countries with varying weather climates. Today, in cities all over the world, district energy systems provide heating and cooling to public spaces such as commercial buildings, condominiums, hotels, sports facilities, universities, corporate headquarters, government and industrial complexes. The systems provide service using standard technology with most systems operating at a reliability of 99.99 percent or greater.

A major benefit of a district cooling system is that it can serve many customers from one location and it can accomplish things individual buildings cannot, such as utilizing seawater for air conditioning. Buildings connected to district cooling systems also have lower capital costs for their energy equipment because they don’t need chillers and cooling towers. They save valuable upfront dollars they can invest elsewhere. Plus, they save building space that can be used for other more valuable purposes.

**SWAC in Honolulu**

In Hawaii, the high dependence on oil for production of electricity with the resulting high electricity costs creates the perfect opportunity to use seawater air conditioning to provide customers with cost-effective chilled water with long-term stable rates. Conventional air conditioning systems consume over four times more electricity than equivalent SWAC systems. A SWAC district cooling system will therefore decrease Hawaii's dependence on foreign oil with positive economic, environmental and strategic consequences.




The HSWAC system is designed to serve up to 25,000 tons of building air conditioning load in the downtown area. The first service date for the system is scheduled for the middle part of 2010. The design calls for a cold seawater supply pipe that extends to a depth of 1,600 feet approximately 19,000 feet off-shore. Similarly, the warmed seawater return pipe will extend 3-4,000 feet off-shore to a depth of 80 to 200 feet where the now warmer seawater can be returned to the ocean in an environmentally friendly manner.

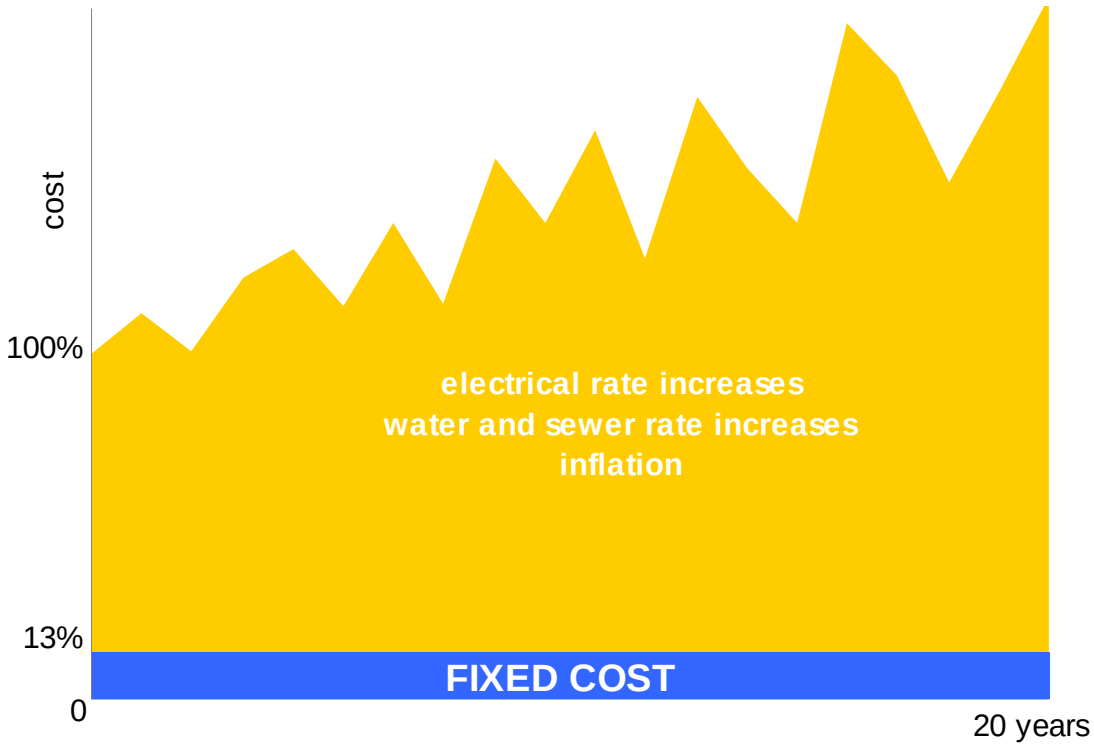
A land-based pumping station pumps the 45° F cold water from the Pacific Ocean to corrosion-resistant alloy heat exchangers where the cold water cools a closed-loop district cooling system. The district cooling system provides cooling to each customer's building through 15,000 feet of supply and return distribution pipes. Auxiliary chillers at the cooling plant are used to maintain a maximum temperature of 44° F to all customers throughout the whole distribution system.

**Air Conditioning Costs**

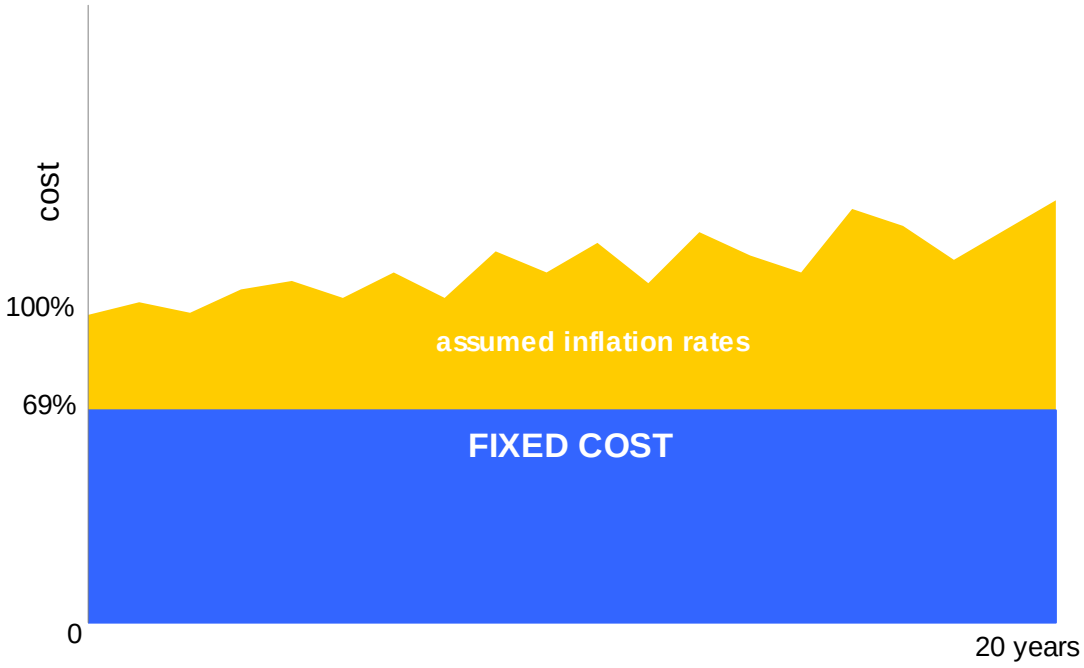
Currently, customers utilize electricity to drive the chillers, pumps and cooling towers to produce building air conditioning. The customers' annual equipment cost allocation is approximately 13% of the annual operating cost of the on-site system (for a composite of 13 State buildings audited by HSWAC). This results in 87% of the customers' costs subject to ever increasing electricity, potable water, chemical and sewer costs, and inflation.

The HSWAC project provides significant economic benefits for customers with predictable capital cost charges representing approximately 69% of total costs versus only 13% for on-site systems. The figure below illustrates the stable HSWAC projected cost of operation and the variable conventional on-site projected costs.

**Cost of operation**




The cost associated with conventional on-site air conditioning systems is a variable dependent upon electrical, water, sewer and inflation rate increases. Only about 13% of the cost is capital cost for the composite of 13 state buildings audited by HSWAC.




About 69% of the cost associated with the SWAC system is based on capital cost.

The ability to provide customers a 20- or 25-year stable air conditioning cost at a price that initially is on average over 20% lower than the on-site cost, assuming an oil price of $100 per barrel (for the composite of 13 State buildings audited by HSWAC), is a compelling reason for customers, such as the State of Hawaii, to favorably consider joining the seawater-based district cooling system. In fact, the majority of the initial capital expenditures are related to piping and installation. It is estimated that the piping will have a 50-year or greater life and, therefore, not require replacement.

**Benefits of SWAC**

SWAC systems provide numerous benefits to many Hawaii stakeholders. More than 100,000 tons (of cooling load) have been identified throughout the Hawaiian Islands as technically feasible SWAC developments. Most of this potential exists along the South shore of Oahu, the most populated island.

Honolulu Seawater Air Conditioning, LLC is developing a 25,000-ton SWAC system for downtown Honolulu. A SWAC development here would provide the following benefits:

- **Stable Cooling Costs.** Honolulu has some of the highest electricity costs in the nation. And, these costs have been increasing faster than the rate of inflation. SWAC systems will provide customers with reduced and stable cooling costs.
    - Average commercial electricity costs in Honolulu are currently more than 25 cents/kWh.
    - These costs have increased at a real (inflation-adjusted) rate of nearly 2.2%/year over the period of 1990 to 2007. Annual increases, with inflation, are more than 4.3%/yr.
    - At this rate, real electricity costs will increase by nearly 72% over the 25-year book life of a SWAC project (with inflation, the cost increase is more than 187%).
    - Energy costs are a small fraction of total costs for a SWAC system and SWAC life cycle costs will, therefore, remain stable.
- **Renewable Energy Use.** SWAC uses an infinite, 100% renewable energy resource - cold, deep seawater.
    - SWAC will greatly help the State of Hawaii, and HECO, meet new Renewable Portfolio Standard (RPS) Standards.
    - More than 90% of the energy savings from SWAC are due to the use of an abundant, infinite renewable energy resource – cold, deep seawater.
    - With limited land area and high electrical demand, Oahu will have the greatest challenge in meeting RPS Standards. SWAC is the renewable energy technology that can provide the greatest benefits to Oahu in the near term.
    - The 25,000-ton HSWAC project will provide renewable energy benefits equal to:
        - 42 MW of photovoltaics (at a Capacity Factor [CF] = 0.21);
        - 27 MW of wind (at a CF = 0.32); or
        - 14 MW of MSW or biomass combustion (at a CF = 0.65).

- **Reduced Oil Dependence.** Hawaii is more than 90% dependent on imported fossil fuels, most of this is oil. A SWAC system can significantly reduce imports of crude oil.

  - The 25,000-ton HSWAC project will reduce crude oil consumption by more than 178,000 barrels per year.

- **Reduced Potable Water Use.** SWAC systems eliminate the need for cooling towers and, as a result, reduce potable water use, toxic chemical use, and the production of sewage.

  - The 25,000-ton HSWAC project will save up to 292 million gallons of potable water per year.

  - The 25,000-ton HSWAC project will reduce sewage generation by up to 114 million gallons per year.

  - SWAC systems eliminate the need for cooling water treatment chemicals.

- **Environmental Benefits.** Reduced use of fossil fuels provides for significant reductions in greenhouse gas emissions and other air and water pollutants. SWAC systems greatly reduce the use of harmful chemicals (refrigerants) used in conventional cooling systems.

  - The 25,000-ton HSWAC project will reduce the production of pollutants from fossil fuel combustion by up to the following amounts:

    - Carbon Dioxide ($CO_2$) Emissions — 84,000 tons/year
    - Volatile Organic Compounds (VOC) Emissions — 5 tons/year
    - Carbon Monoxide (CO) Emissions — 28 tons/year
    - Particulate Matter under 10 microns ($PM_{10}$) Emissions — 19 tons/year
    - Nitrogen Oxides (NOx) Emissions — 168 tons/year
    - Sulfur Oxides (SOx) Emissions — 165 tons/year

- **Energy Efficiency and Demand Side Management Benefits.** Energy savings with SWAC systems are 75%, or more, compared to conventional A/C.

  - Each ton of SWAC eliminates the need for nearly 3,100 kWh/year of energy use.

  - The 25,000-ton HSWAC project will save more than 77 million kWh per year. This is equivalent to more than 27,000 residential solar water heating systems.

  - Each ton of SWAC eliminates the need for nearly 0.63 kilowatts of new (likely-to-be-fossil-fueled) generation capacity.

  - The 25,000-ton HSWAC project will eliminate the need for more than 14 megawatts of new generation. This is equivalent to more than 19,000 residential solar water heating systems.

  - This reduced demand for new energy generation is equivalent to one year of HECO's projected load growth.

  - The reduced need for expensive new electricity generation capacity will help to keep electric rates lower for longer.

- **Reduced Operations and Maintenance Costs.** Large-scale, district cooling systems have lower operating and maintenance costs than individual building air conditioning systems.

- **Local Economic Development.** A SWAC project will generate millions of dollars in construction project spending. In addition to construction jobs, a significant number of long-term, well-paid jobs will also be created. Other local economic development benefits will accrue from money that stays in Hawaii, and is not used to purchase oil.

    - During the lifetime of the downtown Honolulu SWAC system, local spending will amount to more than $294 million. The calculated output based on this local spending is $456 million. This amount of local spending will also generate $149 million in earnings and 3,516 full-time-equivalent person-years (FTEPY) of jobs. This is equivalent to 133 full time jobs for 26.5 years.

    - During that same period, the downtown Honolulu SWAC system will generate $24 million in new State taxes.

- **Government Energy Goals and Mandates.** SWAC systems will help the City & County of Honolulu, the State of Hawaii, and the federal government to meet goals and mandates for energy efficiency and renewable energy use.

- **Secondary Benefits.** There are a number of potential uses of the seawater that leaves the SWAC system. Among these are: (1) auxiliary cooling for power plants, industrial facilities, and cooling systems; (2) flushing of harbors and canals; and (3) cold water agriculture and aquaculture.

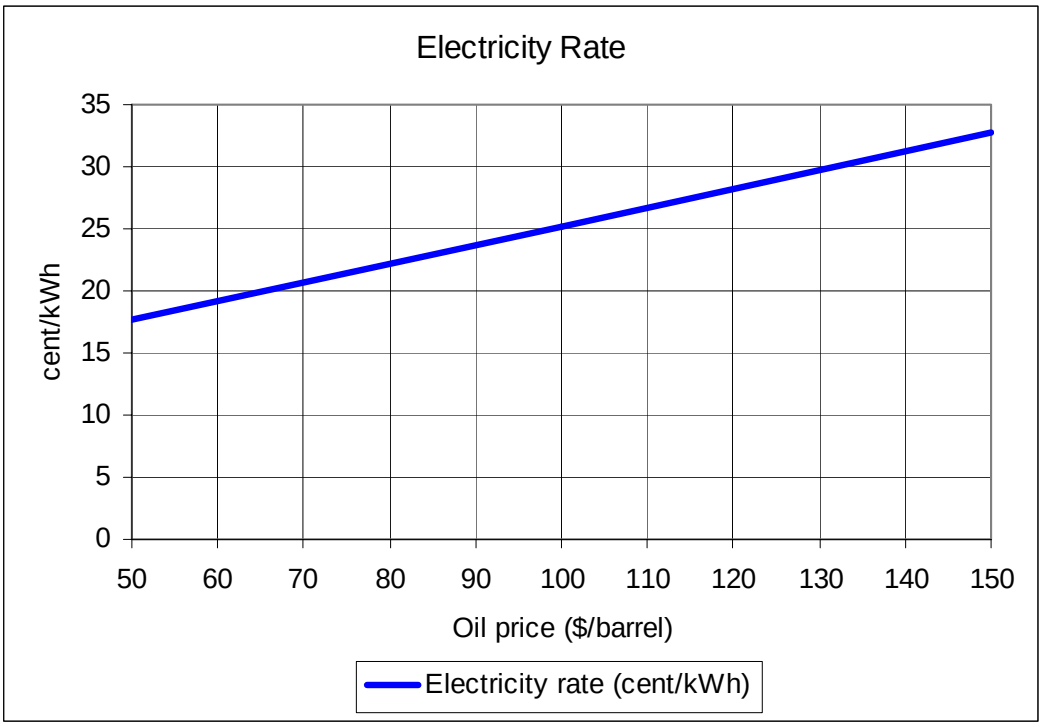
- **Reliable Cooling.** SWAC systems are simple, and technically and economically feasible today. SWAC systems use industrial-grade, off-the-shelf components. Seawater supply systems have many years of use and demonstrated reliability in sometimes hostile environments. Deep water cooling systems have been successfully installed and operated in a number of areas worldwide from Stockholm, Sweden to NELHA on the Big Island, Hawaii. Large-scale district cooling systems with, or without, thermal energy storage are successful, low cost, energy efficient, environmentally friendly and have been used worldwide. District cooling and heating provided by Ever-Green Energy, LLC have a reliable record of 99.99% reliability, much superior to the typical reliability of local electric utilities, or conventional, building on-site air conditioning.

- **Customers.** SWAC systems provide convenient, reliable, low, 25-year very stable-cost cooling.

**On-Site Air Conditioning Costs**

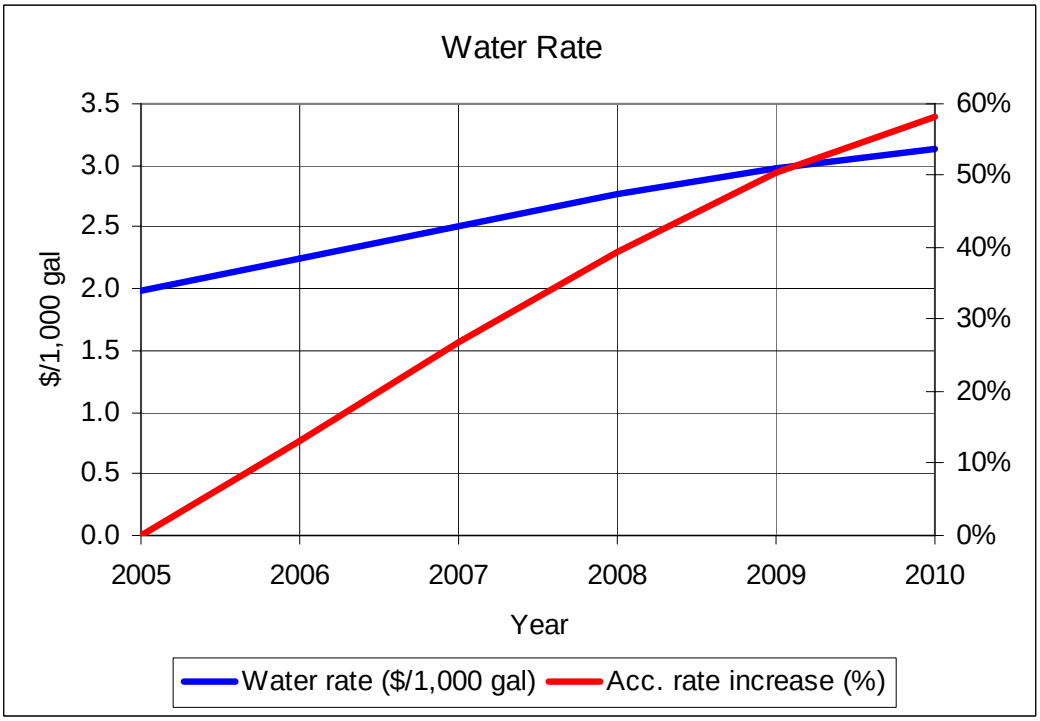
The total cost to produce your current air conditioning from your on-site system includes not only the electricity, potable water and sewer charges but also water treatment and refrigerant chemicals, maintenance and repair, administration and labor to operate the system, the capital cost investment in the equipment and loss of space to house the equipment. Below is an explanation of the costs to produce your on-site air conditioning:

**Electricity charges.** The major cost item for your on-site system is the electricity charge. This includes the electricity to operate your chillers, cooling towers and related pumps and represents about 70 percent of your total air conditioning costs. HECO electricity rates are tied to the cost of oil and are subject to extreme price volatility. The figure below shows the calculated electricity rate based on HECO's recent rate increase request filed with the Public Utility Commission at the end of 2006.

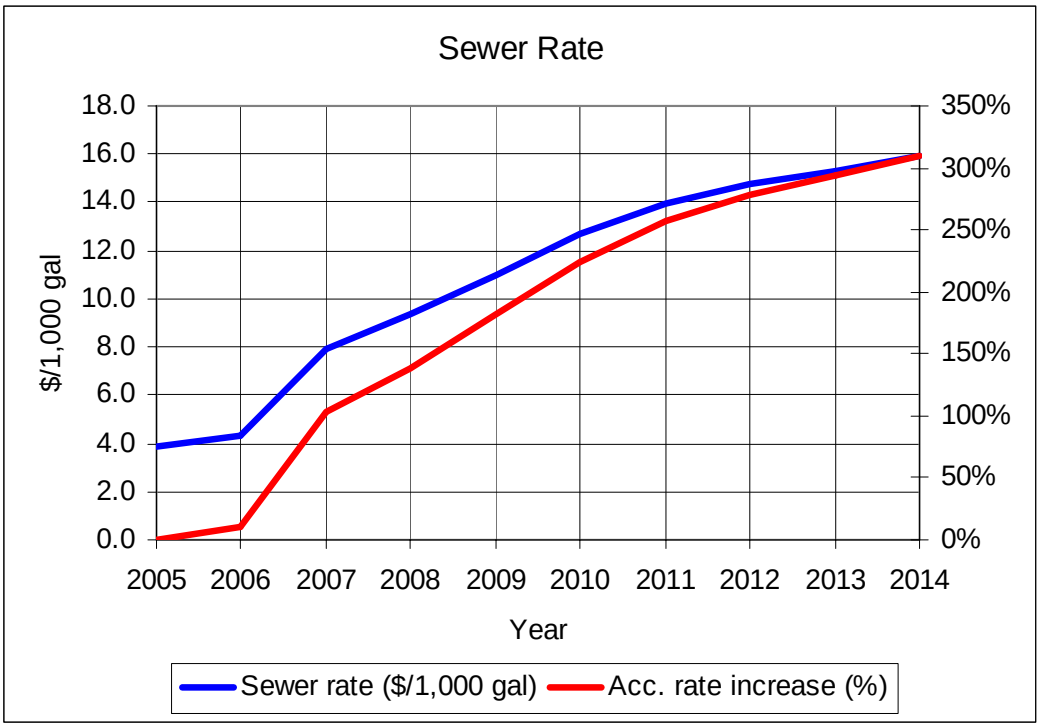



Source: Calculated cost for rate PS at 46% capacity factor based on PUC docket 2006-0386 plus a 1.9% increase for energy conservation and a 3% increase for a new power plant on the 2006 base rate.

**Cooling tower water and sewer.** The potable water usage is based on the evaporation, drift and blowdown rate for your cooling tower system. The associated water and sewer costs are subject to accelerated price increases based on increasing utility charges (see figures below).




Source: Published anticipated rate changes by Honolulu Board of Water Supply




Source: Published anticipated rate changes by Department of Environmental Services (2005-2010) and the Honolulu Advertiser (2011-2014)

**Water treatment and refrigerant.** Water treatment chemicals for the cooling tower loop are consumed with the evaporation and blow down of the potable water. Handling and storage of hazardous chemicals can be eliminated completely.

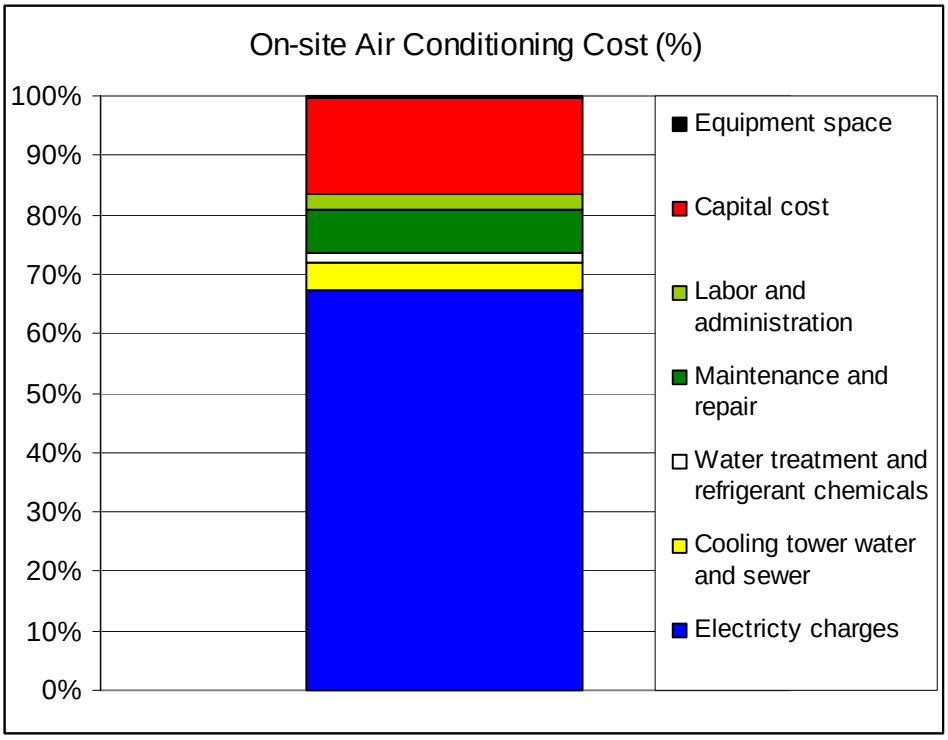
**Maintenance and repair.** Maintenance and repair of an on-site air conditioning system include the periodic and annual scheduled maintenance of equipment, repairs, parts, consumables and any additional labor costs. These charges accelerate as the equipment ages. Preventive maintenance and repair is the work you have contracted with a certified chiller contractor for maintenance check on chillers, cooling towers, chiller primary pumps and condenser water pumps. Planned preventive maintenance includes overhaul or replacement of major capital items such as chiller compressors, etc. Based on Electric Power Research Institute (EPRI) the planned preventive maintenance includes a number of items of which the major ones are: Chiller tube bundle X-ray every 5 years and compressor overhaul every 10 years.

**Labor and administration.** In order to operate an on-site system, you need to spend valuable time on the operation of the equipment and administration of the service. These resources could be more valuably allocated to more productive areas.

**Opportunity cost of capital.** The cost to produce air conditioning includes the capital cost for chillers, cooling towers, electrical equipment, pumps, and the building structural improvements. The opportunity cost of capital is your total cost of capital taking into consideration alternative opportunities for capital investment. When you purchase on-site air conditioning equipment, you are placing your valuable capital into a non-revenue producing asset. The interest rate is your expected rate of return on the alternative investment opportunities and not just your cost of borrowing. The useful life of standard air conditioning equipment is between 15 to 20 years. Even if your system is not at the end of its useful life, you need to take into consideration the future funding requirements and the burdens that are placed on your building investment.

**Equipment space.** On-site systems utilize valuable building space that could otherwise be used for other purposes. The cost for the space the equipment is occupying should be valued based on the cost to build additional space or the opportunity cost to lease out this space for alternative uses.

**The following graph illustrates the cost for a typical on-site air conditioning system:**



# Appendix B

# Renewable Energy
# Comprehensive Air Conditioning Audit for

# SAMPLE BUILDING
## June 2008

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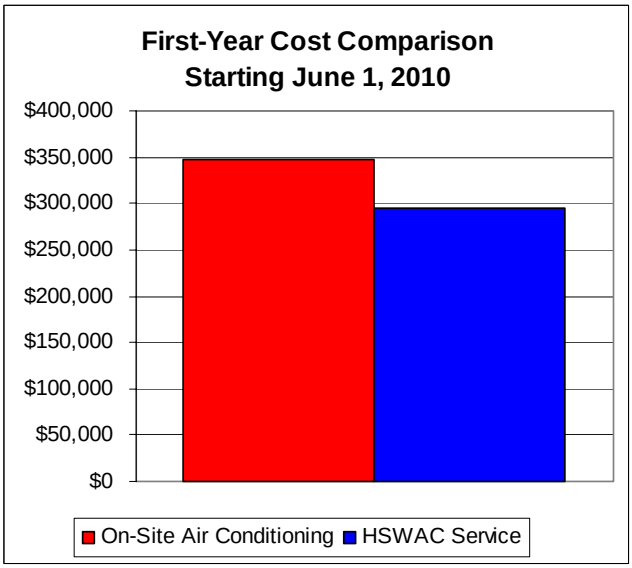
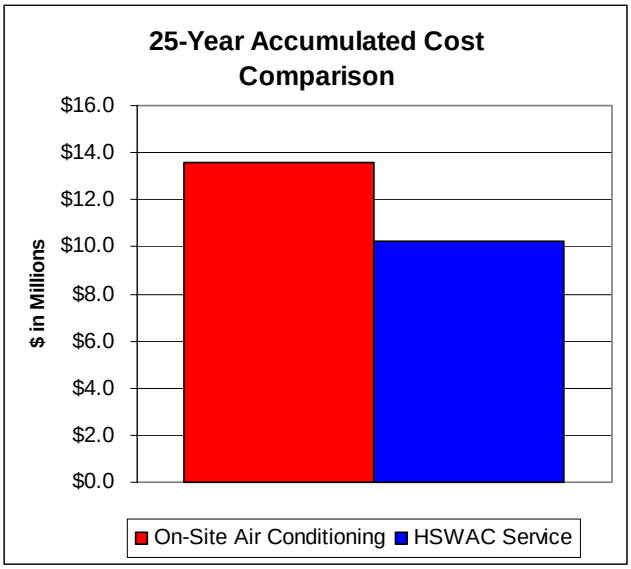
# Honolulu Seawater Air Conditioning
# Comprehensive Air Conditioning Audit Summary for a Sample Building

Honolulu Seawater Air Conditioning, LLC, (HSWAC) presents this comprehensive air conditioning audit to analyze the air conditioning requirements for the Sample Building.[1]

This comprehensive air conditioning audit provides a 25-year cost comparison of on-site cooling costs to the HSWAC cooling service. This comprehensive audit does not address the non-cost items such as the benefits of connecting to a renewable-energy, seawater-based, district cooling system.

During the HSWAC 25-year contract term, on-site cooling costs are expected to increase at a much higher rate than the HSWAC service due to higher dependency on the cost of electricity from oil, water and sewer, and inflation. The following graphs show a projected first-year cost savings of over $53,000 and a 25-year total projected cost savings of over $3.3 million for a Sample Building.




[1] This Comprehensive Air Conditioning Audit contains projections on and after March 1, 2008, which are based on the best estimates available under reasonably anticipated future conditions as of that date.

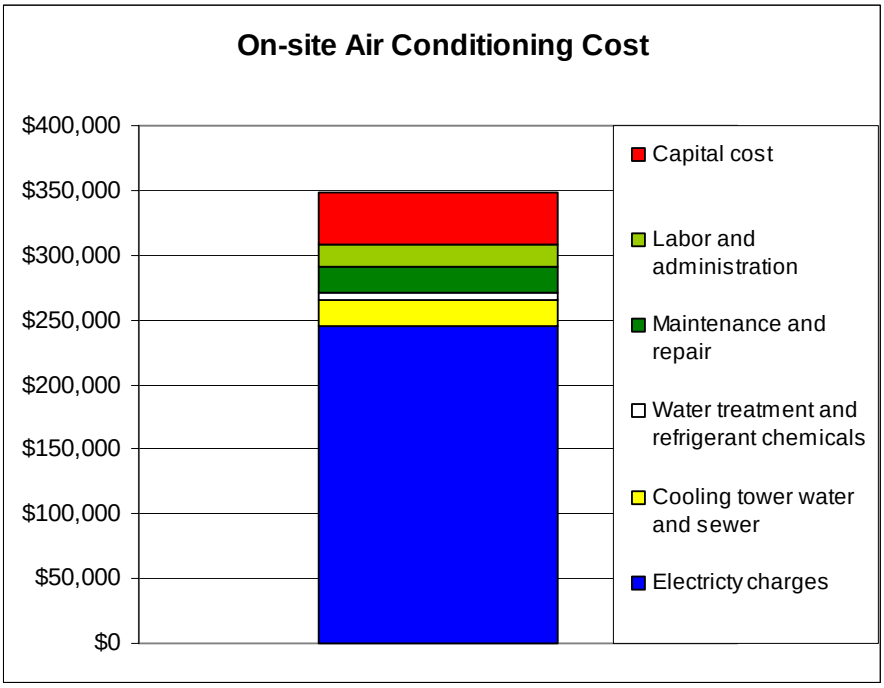
# Sample Building
# On-site Air Conditioning Costs 2010

**The costs below are based on information gathered from the survey of your building and are an estimate of the annual costs you would incur continuing to operate your on-site air conditioning system after June 1, 2010.**

| PROJECTED ANNUAL ON-SITE COST STARTING JUNE 1, 2010 * | On-Site Cooling Cost ($100/Barrel Low Sulfur Fuel Oil) |
|---|---|
| Electricity charges | $244,800 |
| Cooling tower water and sewer | 20,665 |
| Water treatment and refrigerant chemicals | 6,010 |
| Maintenance and repair | 18,900 |
| Labor and administration | 18,304 |
| Capital cost | 39,407 |
| **TOTAL FIRST YEAR ON-SITE COST** | **$348,086** |

* See detailed explanation of the projected costs on page 3

The following graph illustrates your estimated on-site air conditioning costs 2010:



**Your current building system.** Your existing air conditioning system includes two 200-ton chillers installed in 1990. The cooling towers were installed in 1990 and have a combined capacity of 400 tons.

We have conducted a review of your energy control system data, electric data and water usage as part of the analysis of your building's cooling energy usage. Based on your 180,000 square feet of conditioned building space in the building, the operating pattern of your cooling equipment and an analysis of your building characteristics, your estimated peak building capacity is 300 tons with an annual energy usage of 1,125,000 ton-hours (3,750 utilization hours).

**Electricity charges.** The average electric demand for the chillers, cooling towers and condenser water pumps is estimated to be 0.85 kW/ton based on a review of your energy control system data, electric data and equipment specifications. This kW demand cost is calculated using the annual average billed electric demand of 96% of the peak demand incorporating HECO's electric demand ratchet. The electric energy usage for cooling is estimated to be 956,250 kWh annually. Based on HECO's PS Rate Schedule increase the electricity cost is estimated to $0.256/kWh for 2010 at $100 per barrel of Low Sulfur Fuel Oil (see Appendix A). Total estimated annual cost is **$244,800**.

**Cooling tower water and sewer.** The estimated usage of potable water for the cooling towers is 2,880,000 gallons per year based on 3.0 tower concentration cycles and a review of the building's water usage. The estimated sewer discharge from the cooling towers is 921,000 gallons per year. Utilizing the Honolulu anticipated water and sewer rates for 2010 (see Appendix A), the total estimated annual cost is **$20,665**.

**Water treatment and refrigerant chemicals.** Based on the estimated potable water usage above and an average water treatment cost of $2.00/1000 gallons water usage[2], water treatment chemical costs total $5,760 per year. Chiller refrigerant make-up is estimated at $250 per year, for a total estimated annual cost for chemicals of **$6,010**.

**Maintenance and repair.** Includes ***preventive maintenance and repair*** that you have contracted with a certified chiller contractor for maintenance checks on chillers, cooling towers, chiller primary pumps and condenser water pumps at an estimated cost of $5,500 per year. It also includes ***planned preventive maintenance*** for overhaul or replacement of major capital items such as chiller compressors, etc. at $12,800 per year.[3] Includes $600 estimate for insurance and license. Total estimated annual cost is **$18,900**.

**Labor and administration**. Your on-site operating costs include labor cost allocations including benefits for 520 man-hours per year (0.25 of a full-time equivalent) at a wage rate of $32.00 per hour, plus management and administration costs estimated at 10% of labor costs. Total estimated annual cost is **$18,304**.

**Capital cost.** The capital required for purchase and installation of chillers, cooling towers, related pumping, piping and other equipment associated with on-site air conditioning is avoided by connecting to the Honolulu Seawater Air Conditioning's (HSWAC) district cooling system.

The capital and associated debt service costs for your entire on-site, electric-driven equipment are currently on your accounting schedule representing the capitalization and depreciation of this equipment. On average, the useful life of this equipment is up to 20-years and equipment replacement is needed at various points in time requiring capital replacement expenditures. The associated capital expense is a significant cost factor in operating an on-site system in your building.

[2] Based on data from Nalco, etc.
[3] Reference Electric Power Research Institute.

The capital cost for an on-site installation of 400 tons of capacity to replace your existing system is estimated to be $452,000.[4] The total estimated annual cost, at an opportunity cost of capital calculated at 6% for 20 years, is **$39,407**.

**Equipment space.** Removal of the chillers, cooling towers and related equipment will make available for your use the previously occupied area. For Sample Building, the chillers are installed in the utility room on the main floor and the cooling towers are installed on the roof. By eliminating the chillers, space can be made available for additional storage, etc. and by eliminating the cooling towers wear and tear on the roof can be reduced and its useful life expectancy can be extended. The value of the space will be determined by the customer and is not part of this analysis.

[4] Reference Electric Power Research Institute.

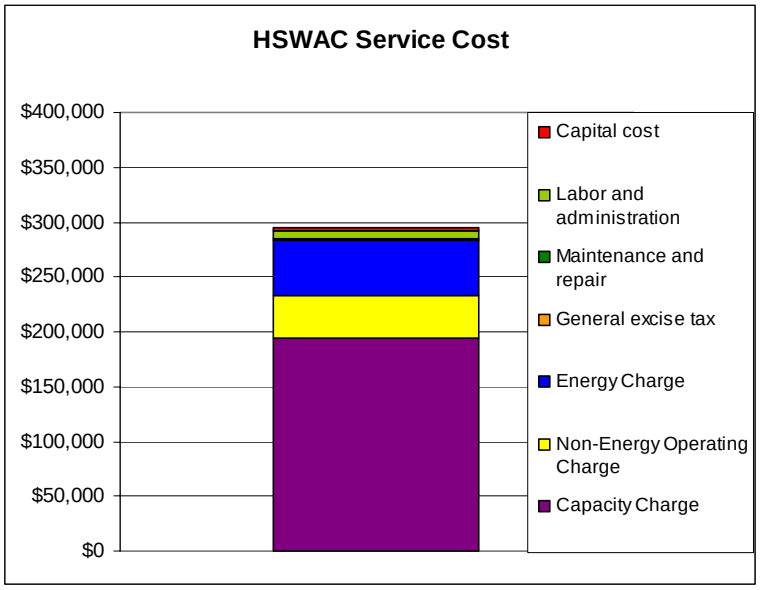
# Sample Building
# HSWAC Service Costs 2010

**The projected costs below are based on information gathered from the survey of your building and a first service date of June 1, 2010.**

| ANNUAL HSWAC SERVICE COST STARTING JUNE 1, 2010 * | HSWAC Service Cost ($100/Barrel Low Sulfur Fuel Oil) |
|---|---|
| **HSWAC service charges** | |
| Capacity charge | $194,400 |
| Non-Energy Operating charge | 38,383 |
| Energy Operating charge | 50,063 |
| General excise tax on HSWAC service charges | 0 |
| **Sample Building's additional costs** | |
| Maintenance and repair cost for control valves, etc. | 1,600 |
| Labor and administration for cooling from HSWAC | 7,322 |
| Capital cost for service connection | 3,051 |
| **TOTAL FIRST YEAR COST** | **$294,799** |

* See detailed explanation of the projected costs on page 6

The following graph illustrates your estimated HSWAC service costs 2010:



**HSWAC service.** When connecting to HSWAC, the use of chillers and cooling towers can be completely eliminated for the building. The HSWAC service will instead provide the necessary chilled water to cool the building.

Based on your building's internal cooling system and the location of your building on the HSWAC district cooling system, a direct connection of your building to the HSWAC district cooling system is proposed as shown in Appendix B. The peak building capacity for the HSWAC service of 300 tons, with an annual energy usage of 1,125,000 ton-hours (3,750 utilization hours), is based on the estimated on-site usage in the previous section**.**

**Capacity charge.** The Capacity charge covers all net debt service, financing costs, equity and working capital. This charge is based on your Initial Capacity tons. There will be a minimum tonnage based on 90% of Initial Capacity tons. Capacity charges will be budgeted annually, with the option to adjust semi-annually for any unbudgeted required increases that may occur. The Capacity charge is set per the contract for the first two years and seven months and thereafter are scheduled to increase thereafter at one-half of inflation, or 1.75%, whichever is the greater. The first year Capacity charge is $54.00/ton/month. Total estimated annual cost is **$194,400**.

**Operating charge.** The Operating charge will include all rents/leases, labor, management, sewer and water charges, insurance, general and administrative expenses, operating and maintenance costs and electricity charges. The non-energy Operating charges will be adjusted periodically to reflect any increase or decrease in actual charges. The non-energy portion of the Operating charge is $0.0341/ton-hr and the energy portion of the Operating charge is $0.0445/ton-hr, for a total of $0.0786/ton-hr at $100 per barrel of Low Sulfur Fuel Oil. The energy portion of the Operating charge will increase with increases in electrical charges, but since these charges only represent approximately 15% of your total HSWAC service costs, the change in your total service costs is much smaller than with your current on-site system. Total estimated annual cost is **$88,426**.

**General excise tax.** A six-year exemption from the general excise tax is based on the HSWAC project as a qualified business within the Enterprise Zone.

**Maintenance and repair.** Includes preventive maintenance and repair of the main control valves, etc. Total estimated annual cost is **$1,600**.

**Labor and administration.** Your HSWAC service operating costs include labor cost allocations, including benefits for 208 man-hours per year (0.10 of a full-time equivalent) at a wage rate of $32.00 per hour, plus management and administration costs estimated at 10% of labor costs. Total estimated annual cost is **$7,322**.

**Capital cost.** HSWAC service pipes will enter your building at a mutually agreed point of delivery. HSWAC will be responsible for the cost and installation of the service piping to the inside of the building's wall. The attachment schematically describes the service connection to the existing building system. The engineering estimate for your connection cost inside the building is $125,000. The energy efficiency rebate from HECO is estimated to be $90,000 when connecting to HSWAC based on the HECO filing at PUC shown in Appendix A. Total estimated net capital cost is thereby $35,000, and total estimated annual cost, at an opportunity cost of capital calculated at 6% for 20 years, is **$3,051**.

**Equipment space.** Chillers, cooling towers, etc. can be removed when connecting to HSWAC**.** The condenser water and cooling tower usage for the computer room heat pumps can be eliminated by installing a heat exchanger between the existing condenser water loop and HSWAC's chilled water service. Space will, however, still be needed for HSWAC equipment such as control valves, piping and an energy meter. The value of the utilized space will be determined by the customer. Taxpaying customers may also receive

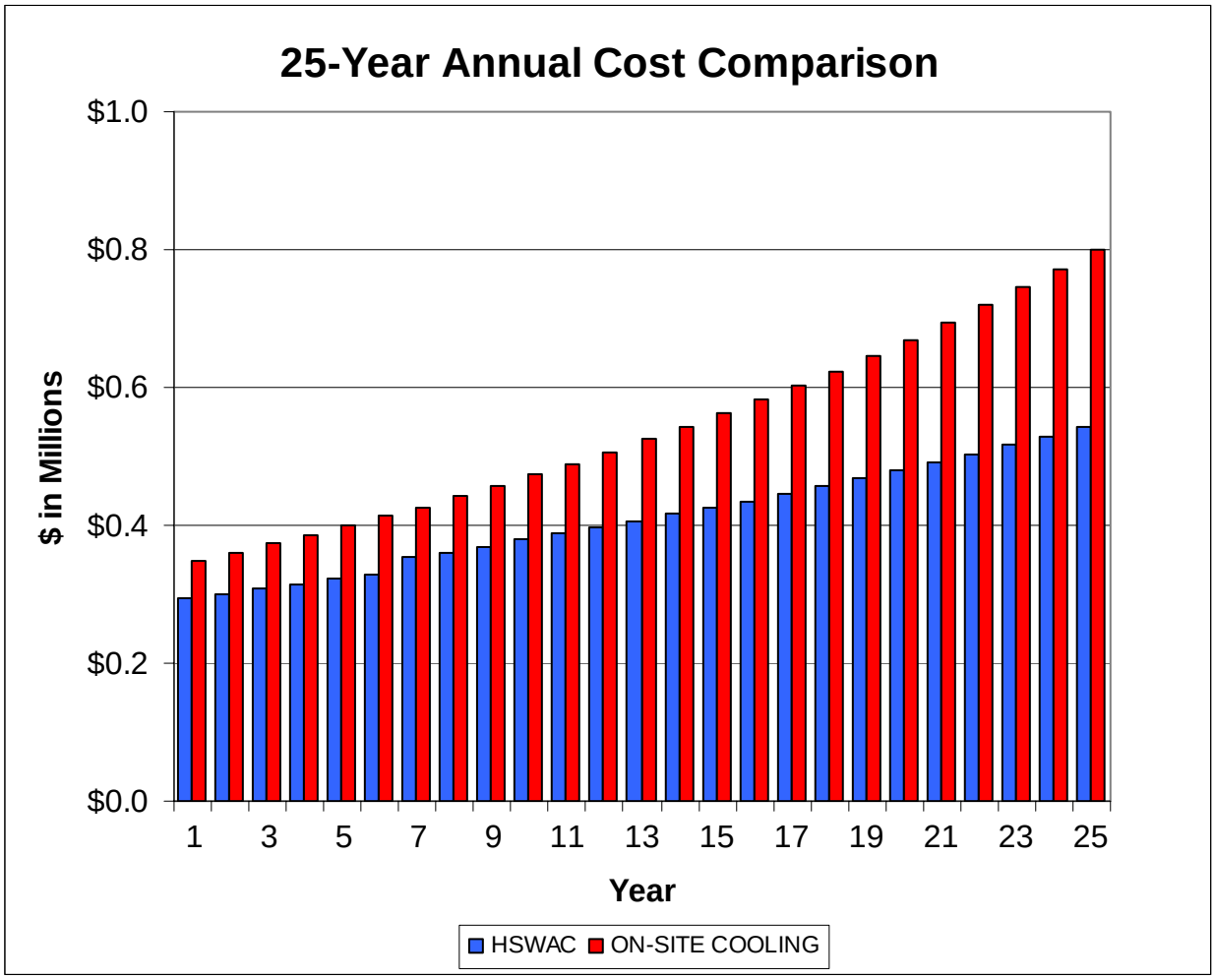
state and federal income tax deductions for abandoned equipment including chillers, pumps and cooling towers.

# Sample Building
# HSWAC Cost Savings

Not only does HSWAC provide long-term rate stability, but it also provides a cost-competitive service compared to your existing on-site air conditioning system. A cost comparison of on-site air conditioning to HSWAC service shows a first year cost savings with HSWAC. As electricity costs increase, the cost savings for HSWAC service will increase.

| **PROJECTED ANNUAL ON-SITE COST STARTING JUNE 1, 2010** | **At $100/Barrel Low Sulfur Fuel Oil** | **PROJECTED ANNUAL HSWAC SERVICE COST STARTING JUNE 1, 2010** | **At $100/Barrel Low Sulfur Fuel Oil** |
|---|---|---|---|
| | | **HSWAC service charges** | |
| Electricity charges | $244,800 | Capacity charge | $194,400 |
| Cooling tower water and sewer | 20,665 | Non-Energy Operating charge | 38,363 |
| Water treatment and refrigerant chemicals | 6,010 | Energy Operating charge | 50,063 |
| | | General excise tax on HSWAC service charges | 0 |
| | | **Sample Building's additional costs** | |
| Maintenance and repair | 18,900 | Maintenance and repair cost for control valves, etc. | 1,600 |
| Labor and administration | 18,304 | Labor and administration for cooling from HSWAC | 7,322 |
| Capital cost | 39,407 | Capital cost for service connection | 3,051 |
| **TOTAL FIRST YEAR COST** | **$348,086** | **TOTAL FIRST YEAR COST** | **$294,799** |
| | | **FIRST-YEAR COST SAVINGS WITH HSWAC SERVICE** | **$53,287** |

The following chart provides a projected annual comparison of HSWAC service costs to on-site cooling. The result of the annual cost comparison is a projected first-year cost savings of over $53,000 and a 25-year total projected cost savings of over $3.3 million for the Sample Building.




During the 25-year contract term, on-site cooling costs are expected to increase at a much higher rate than the HSWAC service due to higher dependency on the cost of oil-based electricity, water and sewer, and inflation. The chart above compares the cost of on-site cooling and HSWAC cooling services over a 25-year period. Both on-site and HSWAC service costs are based on an inflation rate of 3%, first year electricity costs assuming $100 per barrel of Low Sulfur Fuel Oil, electricity cost increases of 4% per year, and published anticipated water and sewer rates from the Honolulu Board of Water Supply and the Department of Environmental Services.

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**william.mahlum@honoluluswac.com**

**Electricity, Water and Sewer Rates**

**Electricity rates**

| **Rate PS** | | |
|---|---|---|
| Energy Charge (cent/kWh) | | |
| | <201 kWh/kW per mo. | 14.1560 |
| | 201-400 kWh/kW per mo. | 13.3577 |
| | >400 kWh/kW per mo. | 13.0485 |
| Demand Charge ($/kW, mo.) | | |
| | <501 kW | 20.00 |
| | 501-1500 kW | 19.50 |
| | >1500 kW | 18.50 |
| Customer Charge ($/mo.) | | |
| | All | 350 |
| DSM Cost Recovery (cent/kWh) | | |
| | DSM Adjustment | 0.2000 |
| Network Adjustment (% on Energy & Demand) | | |
| | Downtown Honolulu | 0.9% |

- Source PUC docket 06-0386
- Base oil price $65.2243/barrel Low Sulfur Fuel Oil (LSFO)
- **Energy Cost Adjustment** **0.151 cent/kWh per $1/barrel LSFO (estimate by HECO)**
- Demand Ratchet Min. average of current month and greatest of preceding 11-month measured demand
- Requested IRP/DSM increase 1.9% on base energy and demand rate 2006
- Increase for new power plant 3.0% on base energy and demand rate 2006

**Hawaiian Electric Company, Inc.** • PO Box 2750 • Honolulu, HI 96840-0001

November 21, 2007

William A. Bonnet
*Vice President*
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PUBLIC UTILITIES
COMMISSION

The Honorable Chairman and Members of
the Hawaii Public Utilities Commission
465 South King Street
Kekuanaoa Building, 1st Floor
Honolulu, Hawaii 96813

Dear Commissioners:

Subject: Docket No. 2007-0341 - Review of Demand-Side Management Reports and Requests for Program Modifications

This is to inform the Commission that in its forthcoming Annual Program Modifications and Evaluation ("M&E") Report, HECO will be requesting Commission approval to establish a $300/ton customer incentive level for sea water district cooling ("SDC") in its Commercial and Industrial Customized Rebate ("CICR") Program. HECO maintains that the establishment of a prescriptive SDC customer incentive will help to encourage commercial and industrial customers to conserve energy by installing this customized energy efficiency technology.

SDC is a renewable demand-side management ("DSM") resource that can provide major benefits in terms of energy and demand savings, the longevity of these savings, contribute to the lowering of greenhouse gas emissions, and be a major contributor to the State's Renewable Portfolio Standards goals. Using cold deep sea water sourced at the temperatures of traditional chilled water air conditioning systems, SDC systems have the potential to reduce the majority of the energy usage and power demand associated with these air conditioning systems. An example of a SDC system is the 25,000 ton system proposed by Honolulu Sea Water Air Conditioning ("HSWAC") for downtown Honolulu. This project has the potential to reduce the energy and demand associated with commercial air conditioning in the downtown Honolulu area to a much greater degree than any other air conditioning technology that HECO currently promotes with its existing energy efficiency DSM program customer incentives. HECO is supportive of the HSWAC project, and has offered its Richards Street headquarters as a potential site for the SDC system.

In its forthcoming M&E Report, to be filed by November 30, 2007 in the subject docket, HECO will provide a discussion in support of the establishment of a $300/ton prescriptive customer incentive level for the SDC technology.

Sincerely,

cc: Division of Consumer Advocacy

**Water rates**

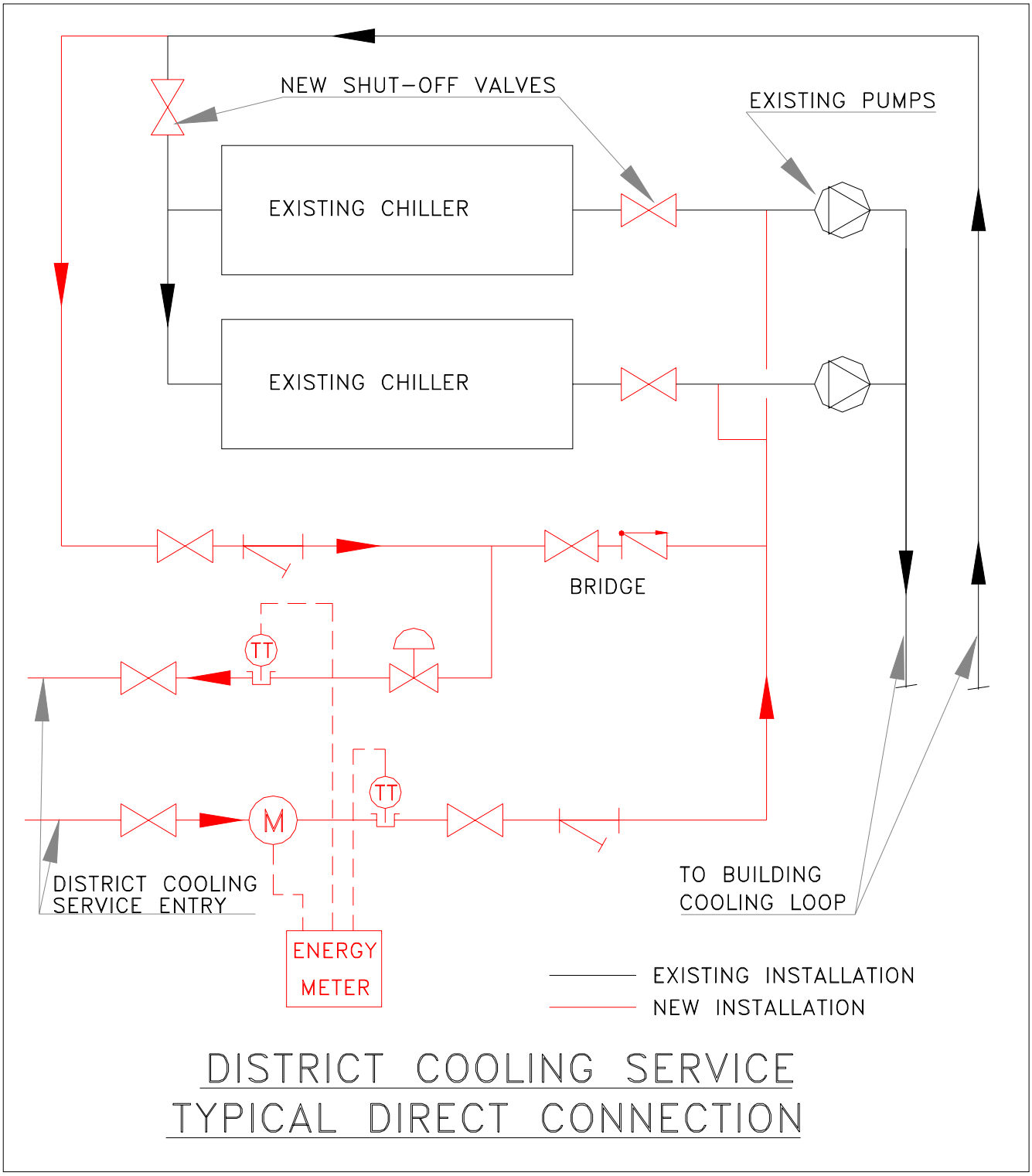
| Year | Water Rate ($/1,000 gal) | Acc. Increase |
|---|---|---|
| 2005 | 1.98 | 0% |
| 2006 | 2.24 | 13% |
| 2007 | 2.51 | 27% |
| 2008 | 2.76 | 39% |
| 2009 | 2.98 | 51% |
| 2010 | 3.13 | 58% |

- Source: Published anticipated rate changes by Honolulu Board of Water Supply

**Sewer rates**

| Year | Sewer Rate ($/1,000 gal) | Acc. Increase |
|---|---|---|
| 2005 | 3.90 | 0% |
| 2006 | 4.29 | 10% |
| 2007 | 7.90 | 103% |
| 2008 | 9.32 | 139% |
| 2009 | 11.00 | 182% |
| 2010 | 12.65 | 224% |
| 2011 | 13.92 | 257% |
| 2012 | 14.75 | 278% |
| 2013 | 15.34 | 293% |
| 2014 | 15.95 | 309% |

- Source: Published anticipated rate changes by Department of Environmental Services (2005-2010) and the Honolulu Advertiser (2011-2014)




DISTRICT COOLING SERVICE
TYPICAL DIRECT CONNECTION

# Appendix C

## Confidential Information

Confidential information regarding Project Summary from Section 2.2 Project Summary (see page 8).

| DISTRICT COOLING PROJECT SUMMARY (CONFIDENTIAL INFORMATION) | | | | | | |
|---|---|---|---|---|---|---|
| **Project** | **Customer Building Building Type** | **Conditioned Space (Sqft)** | **Project Size (Dollars)** | **Customer Portion (Dollars)** | **First Service Month-Year** | **Contract Term (Years)** |
| Customer 1 | Residential Building | 190,000 | $95,000 | $45,000 | May-04 | 20.0 |
| Customer 2 | Office Building | 103,000 | $175,000 | $125,000 | April-03 | 20.0 |
| Customer 3 | Residential Building | 215,000 | $55,000 | $55,000 | April-04 | 20.0 |
| Customer 4 | Residential Building | 149,000 | $167,000 | $167,000 | June-04 | 20.0 |
| Customer 5 | Commercial Building | 31,000 | $69,000 | $69,000 | June-04 | 20.0 |
| Customer 6 | Office Building | 82,000 | $164,000 | $75,000 | April-03 | 20.0 |

Confidential information regarding Project Dates from Section 2.3 Project References (see page 9).

| DISTRICT COOLING PROJECT SUMMARY (CONFIDENTIAL INFORMATION) | | | | |
|---|---|---|---|---|
| **Project** | **Customer Building Building Type** | **Proposal Date Month-Year** | **Contract Signing Month-Year** | **First Service Month-Year** |
| Customer 1 | Residential Building | April-03 | August-03 | May-04 |
| Customer 2 | Office Building | August-01 | September-02 | April-03 |
| Customer 3 | Residential Building | March-03 | September-03 | April-04 |
| Customer 4 | Residential Building | March-03 | October-03 | June-04 |
| Customer 5 | Commercial Building | March-03 | October-03 | June-04 |
| Customer 6 | Office Building | August-02 | December-02 | April-03 |

## Confidential Information

# Confidential Information

Confidential information regarding Project Performance from Section 2.3 Project References (see page 10).

| DISTRICT COOLING PROJECT COST SUMMARY (CONFIDENTIAL INFORMATION) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project** | **Units** | **Average Projected Annual Savings** | **Annual Energy Savings Year 1** | **Annual Energy Savings Year 2** | **Annual Energy Savings Year 3** | **Annual Energy Savings Year 4** | **Annual Energy Savings Year 5** |
| Customer 1 | Capacity (Tons) | 190 | 190 | 190 | 190 | 152 | |
| | Change in Capacity (Tons) | 0 | 0 | 0 | 0 | (38) | |
| | Cost Savings (Cost) | $5,041 | $6,604 | $7,943 | $8,247 | $20,447 | |
| Customer 2 | Capacity (Tons) | 180 | 180 | 180 | 180 | 154 | 153 |
| | Change in Capacity (Tons) | 0 | 0 | 0 | 0 | (26) | (27) |
| | Cost Savings | $30,751 | $30,359 | $31,156 | $32,746 | $41,911 | $45,106 |
| Customer 3 | Capacity (Tons) | 135 | 135 | 135 | 135 | 108 | |
| | Change in Capacity (Tons) | 0 | 0 | 0 | 0 | (27) | |
| | Cost Savings | $7,247 | $8,047 | $8,977 | $9,694 | $18,667 | |
| Customer 4 | Capacity (Tons) | 234 | 234 | 234 | 234 | | |
| | Change in Capacity (Tons) | 0 | 0 | 0 | 0 | | |
| | Cost Savings | ($903) | $2,780 | $3,846 | $5,678 | | |
| Customer 5 | Capacity (Tons) | 96 | 96 | 96 | 96 | | |
| | Change in Capacity (Tons) | 0 | 0 | 0 | 0 | | |
| | Cost Savings | ($370) | $1,141 | $1,578 | $2,330 | | |
| Customer 6 | Capacity (Tons) | 250 | 250 | 250 | 250 | 237 | |
| | Change in Capacity (Tons) | 0 | 0 | 0 | 0 | (13) | |
| | Cost Savings | ($987) | ($496) | $84 | $2,344 | $7,381 | |

# Confidential Information