

2012
Annual
Report



**MISSION
STATEMENT**

“To develop and diversify Hawaii’s economy by providing resources and facilities for energy and ocean related research, education, and commercial activities in an environmentally sound and culturally sensitive manner.”

www.nelha.org

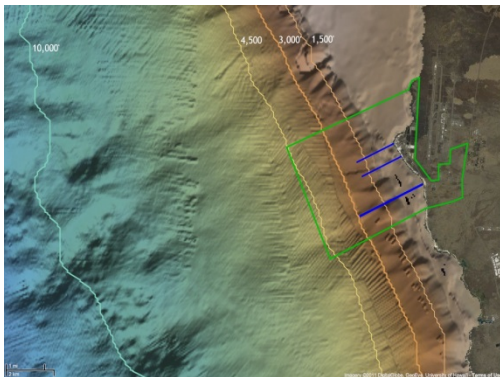
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NELHA FY 2012 ANNUAL REPORT

1.0 Introduction

The Natural Energy Laboratory of Hawaii Authority (NELHA) is a master-permitted ocean science and technology park whose mission is to bring economic development and diversification to the State of Hawaii and specifically West Hawaii. HOST Park is comprised of 870 acres of at Keahole Point, Kailua-Kona, on the Island of Hawaii. NELHA was created to host and support research, development, pre-commercial and commercial enterprises that make use of the unique resources at the laboratory's site at Keahole Point, particularly the clean, cold, deep ocean water accessible near to the shore as well as high solar irradiation. Its assets include a unique complement of support facilities, infrastructure, pristine natural resources and leasable land for a wide range of business research, commercial and educational applications. The NELHA story now spans 38 years and is an example of public investments by visionary State leaders that have yielded multiple returns for the benefit of all.



Initially, the primary focus was on a promising method of non-carbon based energy production called "OTEC" or ocean thermal energy conversion. A dual-temperature seawater system was constructed and is the only one of its kind in the world and sets NELHA apart from all other technology parks. It creates a prime setting for innovation and new industry

development in this unique island coastal setting. The seawater system continually brings ashore high quality pristine supplies of both warm surface and cold deep seawater 24 hours a day, 365 days a year.

In this regard, the facility is the world's premier site for Ocean Thermal Energy Conversion (OTEC) research and development. The first net-energy generating floating OTEC plant as well as a working 1-MW floating plant was deployed off Keahole Point in 1979 and 1983 respectively. The Net Power Producing Experiment (210 kW) using the open-cycle OTEC process was constructed and operated on-land at HOST Park from 1992-1998. NELHA today continues to be the site of OTEC-related research; current efforts by Makai Ocean Engineering and Lockheed Martin include the investigation of aluminum alloys as candidate materials for OTEC heat

exchangers. In addition, NELHA is negotiating with OTEC International for 1 MW OTEC demonstration facility.

NELHA serves as a laboratory for research and development; as an incubator facility for developing innovative new technologies and businesses; and, as a base for commercial operations that utilize or are related to the use of the cold and warm seawater and other resources available. Concurrent research and outdoor demonstration projects in other areas such as alternative energy and ocean-related technologies have also showed the tremendous economic potential of the unique dual seawater supply.

SERVICES	RESOURCES	EXPERTISE
NELHA services are tailored to fit each business in HOST Park.	NELHA is uniquely suited as a test bed for clean energy and ocean science opportunities	NELHA provides a wide variety of support to business in HOST Park.
Research Campus: Located near the shoreline on Keahole Point the six-acre Research Campus consists of over 4,000 square feet of laboratory space, outdoor wet laboratory, conference rooms, restrooms and both covered and open industrial storage space.	Site Conditions: Planned master permitted subdivision includes a full range of infrastructure: access roads, potable water, underground telecommunication/electric lines, ocean water, intake and distribution pipes, pumping stations, disposal systems, and groundwater quality monitoring wells.	Water Quality Laboratory: The Lab is staffed with a professional chemist and provides a commitment to excellence combined with a wide array of analytical instruments to generate data of maximum quality. The lab has become a benchmark for environmental water quality analysis for ocean water.
Ocean Water Systems: NELHA is a seawater utility and is master-permitted to pump over 100,000 gallons per minute of pristine surface and deep ocean water within HOST Park.	Ocean Environment: The steep ocean bottom gradient makes possible the tapping of deep, cold waters at depths ranging from 50 to 3,000 feet. This ocean water is of significant purity and has a high nutrient content.	Scientific and Cultural Support is provided in the fields of biosecurity, ocean sciences and ocean energy applications. In addition, there are established cultural and business links to Asia and other Pacific countries.
Office Space: Several buildings within the Research Campus and the Hawaii Gateway Energy Center along Queen Kaahumanu Highway provide office space for businesses located in Host Park.	High Solar Insulation: In the lee of three major mountains, NELHA receives approximately 10 inches of rainfall annually and offers the highest solar insulation of any coastal site in the United States.	Technical Support is provided by engineers, electricians and mechanics. In addition, NELHA works closely with the Friends of NELHA to offer educational tours and information on clean energy projects.

HOST Park can open the door for researchers to take their new ideas beyond research and demonstration to full commercialization, all at one location. HOST Park has also a unique combination of other natural resources, subtropical environment and community infrastructure that makes it a highly desirable location for new business enterprises. Accordingly, HOST Park is the premiere choice for the location of a variety of leading edge research, education, and commercial enterprises capitalizing on innovation in the combined use of seawater and high solar irradiation.

Proximity to an international airport, five minutes away, plays a vital role in helping the HOST Park clients get valuable products to the mainland as well as to Asian and other Pacific-rim markets fast. The prospects for the future are even

greater with new and existing business expansions and recently completed facilities to support cutting edge R&D in renewable energy and ocean sciences. The vision for HOST Park has long been to serve as a demonstration site for many of the US National Energy Laboratories as well as many private sector companies.

From a project lifecycle standpoint, NELHA and HOST Park are in transition and now entering a more mature phase. Much of the seawater infrastructure “backbone” has been completed with the distribution lines for the third deep seawater, potable water lines, underground electrical and telecommunication utilities, major roads and several buildings. In the 80s and 90s, much of the focus was on basic infrastructure development, environmental studies and build-out. The Federal government, State Legislature and Administration, and the County of Hawaii government have provided the policy and financial support the NELHA concept during this time with the investment of over \$100 million.

Over the past 10 years self-sufficiency was the focus. Revenue growth and cost containment for operations were critical to achieving self-sufficiency. NELHA has successfully restructured its operations to become self-sufficient from an operating standpoint and looks forward to live up to its promise and expectation as an economic development engine.

This success has not happened on its own and NELHA acknowledges the strong support in the past that has helped it achieve success. The State administration, Legislature, small and large businesses, Hawaii residents and consumers and particularly NELHA’s Board of Directors and excellent staff who have taken bold actions over the years to meet the demands and challenges of developing the world’s premier ocean science and technology park.

2.0 Year in Review

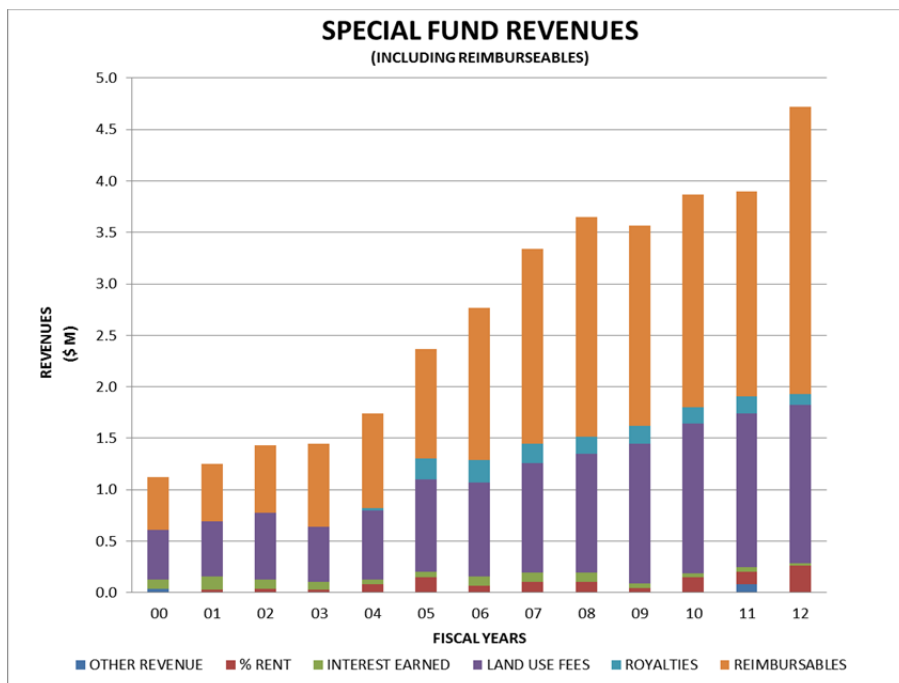
FY 2012 was a year of transition and building a vision for NELHA. Our efforts to date are yielding results and we are poised to grow and fulfill our potential as a site to advance research, stimulate scale-up models and nurture market acceptance of green and clean energy technologies.

As summary of major achievements in FY 2012 is listed below. These achievements illustrate NELHA’s desire to move from functioning as a landlord for an ocean science and technology park towards developing an environment or ecosystem where private sector businesses can grow.

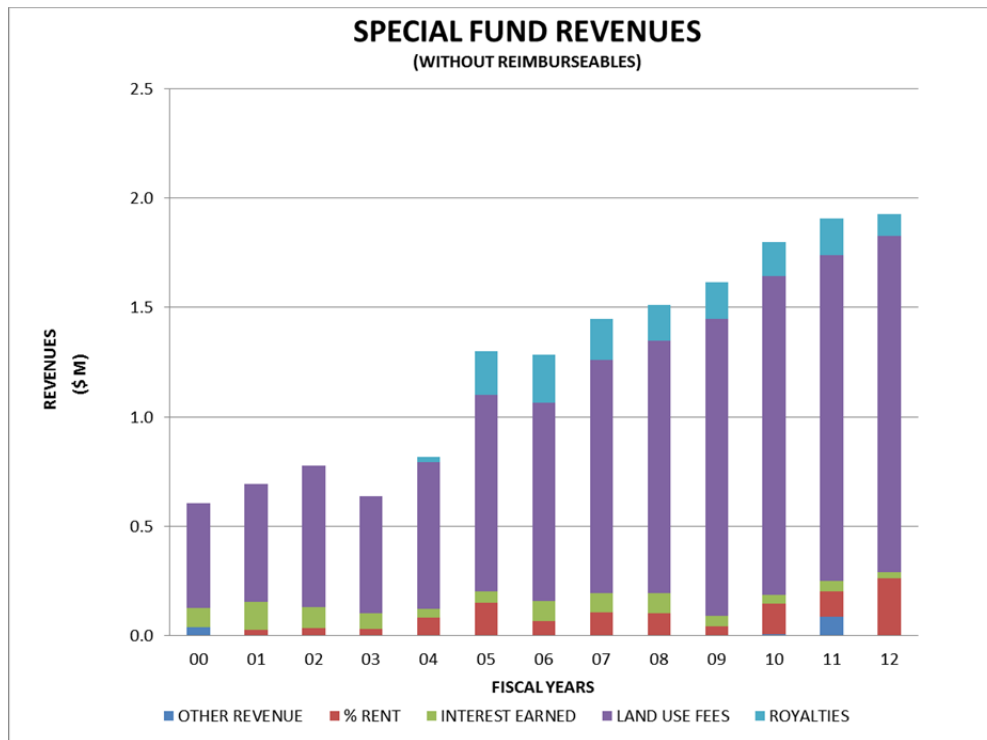
- Update of Master, Strategic and Marketing Plans
- Secure \$3.0M in Federal funds improvements for Alternative Energy and Biotechnology Incubator in Research Campus
- Secure \$400,000 in Federal funds for initial development of micro-grid in Research Campus.
- Independent Economic Impact Study
- Initiative to secure large 1MW OTEC demonstration facility
- Build and grow relationships with key Federal, State, County and University institutions and initiate new marketing efforts.
- Plan for repair of major pipelines to extend lifetime.
- Completed program audit with the State of Hawaii’s Office of the Auditor.
- CEROS secured no-cost extension from DARPA to operate until August 2012 and continued to manage existing contracts.

In terms of financial review, three charts are shown below. These charts illustrate the strong growth that NELHA has seen in revenue and its ability to become self-sufficient over the years.

The chart below illustrates the growth of total revenues over the past twelve years. It shows growth from approximately \$1 million in 2000 to almost \$4 million last year. Much of this growth is due to increasing costs for seawater delivered to businesses in HOST Park. This system operates on a break-even basis. In addition, revenue from electrical and freshwater sub-meters is included in the reimbursable category.

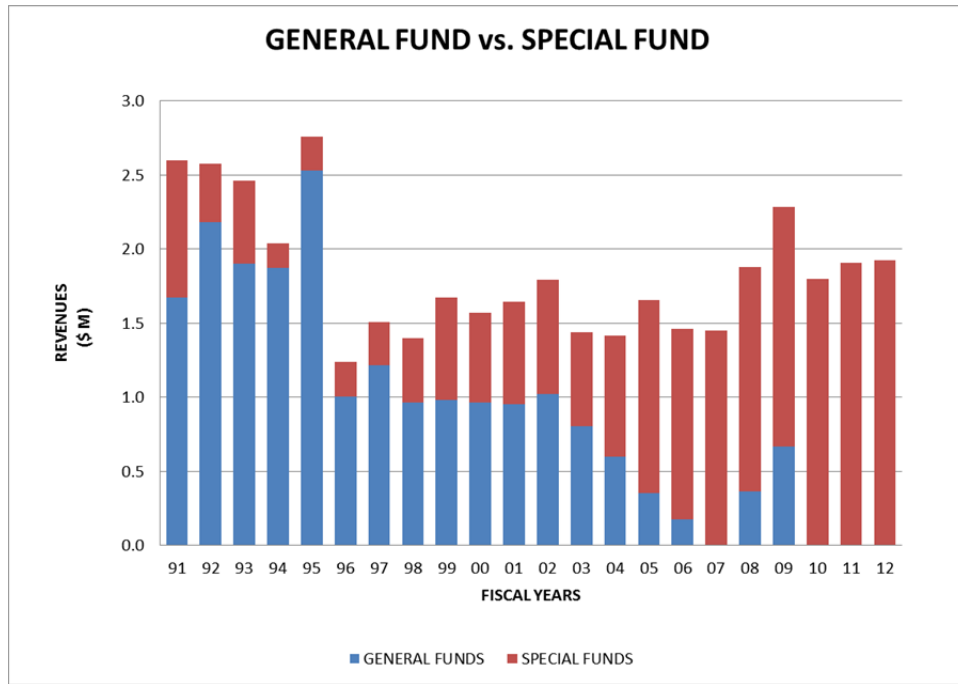


The following chart illustrates the growth of total revenues without reimbursables over the past twelve years. The majority of revenue shown in purple and is from land use fees or base rent from businesses in HOST Park. These businesses also pay a percentage of gross receipts and are shown in red. Royalties are shown in light blue and received from the businesses that began to desalinate and bottle deep-sea water for sale mainly to foreign markets in Asia. These businesses began to operate in HOST Park in 2004. Other revenue was received from the Federal government in FY 2011 to repair earthquake damage.



The chart below speaks for itself in illustrating the success that NELHA has achieved in attaining self-sufficiency over the past 10 years. Around 2000, the State of Hawaii made a major policy decision in that those State agencies with large assets, and therefore the ability generate additional revenue, should begin to become self-sufficient. The chart shows an annual subsidy, shown as general funds in light blue, of approximately \$1 million annually being replaced by revenue from the seawater and land use fees being placed in NELHA's special fund. The basic concept was that general funds were subsidizing those individual businesses in the park. The State still continues to provide funds for capital improvement

projects which are considered a “public good” and available to all business in the park as well as residents throughout the State.



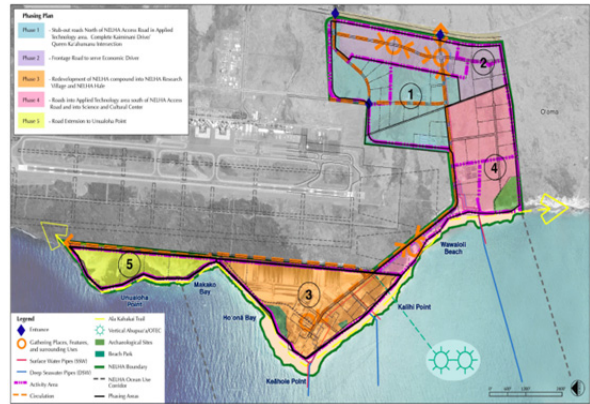
The State government does continue to help support NELHA’s capital improvement projects such as roads and pipelines. During the 10 year period from 2000 to 2010, NELHA has received an average of \$2 million per year in State support. A listing of CIP projects that were completed or in-progress during FY 2012 is listed below.

PROJECT DESCRIPTION	AMOUNT	CONTRACTOR
Master Plan update	\$250,974	Group 70
Design of 40” deep sea water pipeline system repairs	\$300,000	Makai Ocean Engineering
Plans and design for additional seawater pipeline distribution system	\$538,440	RM Towill
Plans and design for access roads and utilities in HOST Park	\$776,523	Parsons Brinkerhoff Inc.
Construction upgrades for 40” deep sea water pipeline system	\$5,300,000	None. (Procurement in FY 2013)
Main Building Renovation in conjunction with EDA \$3.0M grant	\$1,000,000	None. (Procurement in FY 2013)

3.0 Planning

Master Plan: From time to time it is important to update one’s vision for the future. In FY 2012, NELHA completed an update of its Master Plan that is intended to chart the course for NELHA over the next several decades. This planning process also included new design guidelines for development at HOST Park. The updated plan is the third update of the NELHA’s master plan and design guidelines. Both documents are available online at www.nelha.org.

The plan represents countless hours of input and discussions. The plan was conducted with the assistance of Group 70 who designed a planning process using the latest techniques in scenario planning to bring forth a flexible long-term plan for NELHA. Their methods allowed the inclusion of factors that are often difficult to formalize and helped develop novel insights into the future to design a corporate strategy.



The plan is especially poignant in stating that the world is in a great transitional time with financial distress, global warming, resource depletion, as well as food and water shortages to name a few of today’s challenges. It further notes that NELHA is well poised to play an important role in this global transformation with its focus on developing a green economy especially in the areas of alternative energy and ocean resources.

Strategic Plan: NELHA adopted its first strategic plan in 1993 and it was revisited and updated in 2001. Accordingly, upon completion of the Master Plan update, it was timely to review the NELHA Strategic plan for consistency and conformance with the new master plan. The NELHA BOD completed its review and approved the new 2012 Strategic Plan. Among the strategies receiving priority attention are increased focus on developing the 80 acre commercial/industrial site also known as the “economic driver” in the new Master Plan, working closer with the University of Hawaii system and outreach for education to the community regarding renewable energy. A copy of the plan can be accessed at www.nelha.org.

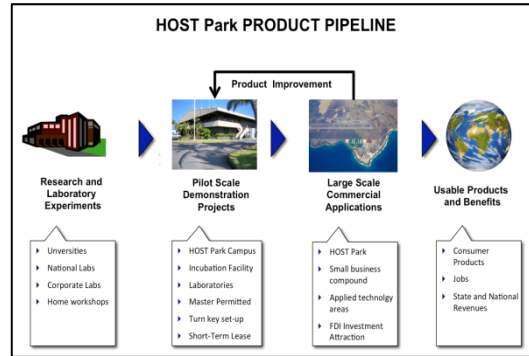
HISTORICAL PERSPECTIVE: FLASHBACK TO THE EARLY 1980s



Image above shows NELHA in 1980 as barren lava with the first road to the Research Campus at Keahole Point in place. Pictured on the right are Governor John Waihee (foreground) and Dr. John Craven about the same time. Dr. John Craven is considered by many to be one of the original visionaries to propose an ocean science and technology park in Kona.

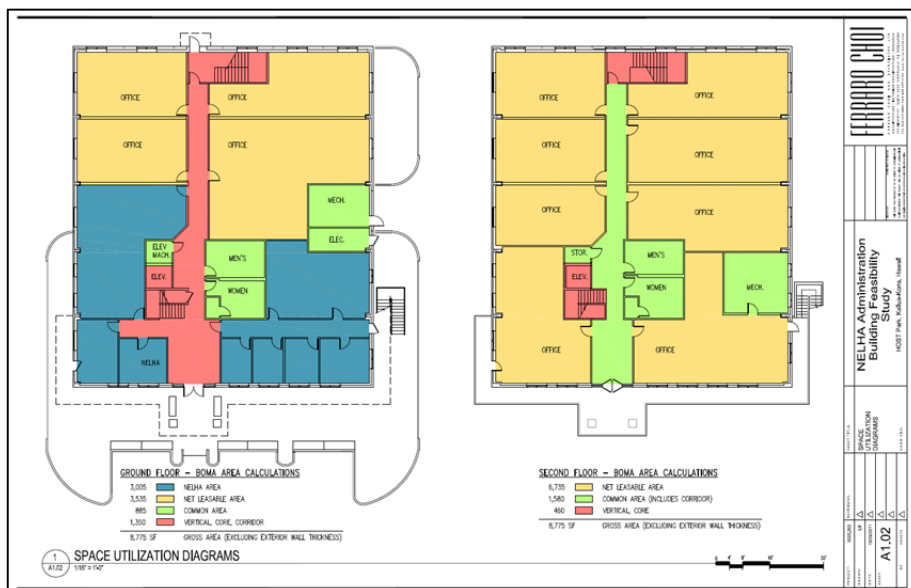


Marketing Plan: In addition, a marketing plan was completed to outline and detail actions necessary to achieve the vision and objectives listed in those plans. The plan included a situational analysis adopted from the Hawaii Gateway Distributed Energy Center and was specifically developed for a grant application to the US Department of Commerce listed below. It is intended that this document will serve as a preliminary plan until the NELHA Distributed Energy Resources strategy can be updated in FY 2013. The figure on the right illustrates the conceptual strategic targets for HOST Park in terms of attracting new businesses.



4.0 US Department of Commerce Funding

NELHA applied for and received a grant of \$3.0 million from the US Department of Commerce Economic Development Administration. The funding will be used to renovate the main administration building which is located in the six acre research campus on Keahole Point. The proposed project will provide a focal point to facilitate a “pipeline” for pre-commercial and commercial tenants for the HOST Park, especially in the fields of alternative energy, biotechnology and ocean science.



According to an engineering study completed by Ferraro Choi and Associates, the overall condition of the building is good and higher levels of utilization could be achieved if this building is renovated as an incubator to support HOST Park ventures. The concept is to relocate storage and maintenance to alternative facilities and renovate building with two floors of incubator space.

Based on their report, renovation of the building is feasible from the structural engineering perspective. The project will not require any changes to the existing super-structure of the facility and the existing foundation is adequate to support the proposed facility. A new two-story structure will be added inside occupying the entire footprint of the shell structure and the existing two-story light wood frame structure will be demolished. In addition, based on the engineering report, the existing surface water drainage, domestic water and access routes, electrical, ventilation, air conditioning are all adequate.

The proposed design will allow for an additional 10,270 SF of net leasable office space. In addition, common amenities will include a conference room and lounge/break room. Possible layouts for the new facility are shown above.

5.0 US Department of Energy Funding

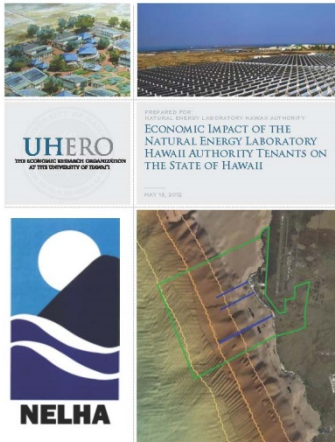


NELHA applied for and received a \$412,000 grant from the U.S. Department of Energy to fund the development and deployment of distributed energy systems at HOST Park. The funds will be used to analyze how advanced energy technologies could improve energy performance at HOST Park with the development of a small micro-grid and provide related updates to the State of Hawaii’s renewable energy and distributed energy resources strategy. DOE’s National Renewable Energy Laboratory (NREL) will serve as a project manager for this grant.

Major components of the project include: 1) the development of a solar energy test bed at the HOST Park Research Campus; 2) an industrial control system for seawater system equipment combined with a system to monitor, collect, and report data about electricity use at NELHA; 3) the collection of system and solar resource data “industrial level weather station” at the NELHA site; and, 4) the updating of the Renewable Energy and Distributed Electric Resources Strategy to increase the utilization of the Hawaii Gateway Energy Center.

The NREL partnership provides an opportunity to work closer with them to better understand the electricity cost and performance for NELHA facilities and especially the seawater distribution system at HOST Park. The control and data acquisition system will provide a backbone that NELHA can build out further in the coming years and greatly assist in making the seawater system more cost efficient.

6.0 Economic Impact Study



An analysis of the economic impact of the HOST Park was completed in FY 2012 by the Economic Research Organization at the University of Hawaii (UHERO).

The report found that the park is generating a significantly larger impact than previously reported.

Total expenditures from businesses were \$81.0 million dollars, of which about \$50 million was paid to Hawaii entities in 2010. Using type II multipliers from the State’s input-output model, UHERO estimated the total economic output to the greater Hawaii economy

was \$87.7 million dollars, which generated \$4.5 million dollars in State tax revenue for 2010. The report notes that for every dollar of state expenditures on NELHA results in \$42.80 of output is generated in the Hawaii economy.”

The analysis also found not only do NELHA tenants employ hundreds of people, but that their expenditures contribute to hundreds of other jobs in the larger Hawaii economy. Total jobs generated in Hawaii was 583 in 2010. The UHERO report notes that these types of jobs contribute to Hawaii through investment in human capital and knowledge spillovers and are important to Hawaii developing a technology and innovation community. An important payoff from such research activity is the types of jobs it creates. The report notes that these are highly skilled, highly productive, engaged citizens that benefit the community.

The report is on based standard empirical research methods to assess the economic impact of NELHA. To estimate expenditures, UHERO researchers developed a survey of total expenditures broken down into 11 categories for 2010. Of the 41 surveys, 23 were completed. Using survey data, data supplied by NELHA and UHERO estimates, the State of Hawaii’s 2007 20 sector input-output (I-O) model was used to determine the economic impact for direct, indirect and induced economic activities by category. The report is available online at www.nelha.org.

Hawaii Ocean Science and Technology Park

Featured Business 2012

CYANOTECH CORPORATION (Nasdaq: CYAN)

One of the secrets at HOST Park is the amount of innovation that local businesses are undertaking with new and varied uses of the deep ocean seawater that is pumped throughout the park. Cyanotech is one of HOST Park's oldest businesses and largest employers. It is a good example of this innovation occurring in which they have developed a one of a kind use of the cold deep ocean seawater to cool their algae ponds and aid in the drying process. As the article below indicates Cyanotech, has been able to turn it around with excellent management, product development and marketing. Cyanotech ended the year with revenue of \$27 million.

AUGUST 5, 2011

pacificbusinessnews.com | PACIFIC BUSINESS NEWS 3

Cyanotech gets healthy after years of struggling

Global marketing and a prominent endorsement help jump-start sales

BIOTECHNOLOGY

BY DUANE SHIMOGAWA
PACIFIC BUSINESS NEWS

After years of financial troubles and coming close to being delisted from the Nasdaq Stock Market, Cyanotech Corp., a developer of nutraceuticals from microalgae, says it has turned the page under new leadership.

It credits its recovery in part to its expansion into international markets and an endorsement from a well-known doctor on national television.

But officials of the Big Island company based in Kailua-Kona are quick to point out that more work still needs to be done.

The 28-year-old publicly traded company had been short of cash for years. In 2003, it was almost delisted from the Nasdaq for not meeting the minimum bid price of \$1 per share.

Cyanotech once had an accumulated deficit of almost \$20 million. It also reported a net loss of \$7.4 million for fiscal year 2007.

Today, it continues its focus on nutraceuticals — BioAstin Natural Astaxanthin and Hawaiian Spirulina Pacifica. It has no plans to get into biofuels.

Early on, Spirulina commanded most of the company's market share, selling up to 80 percent more than Astaxanthin.

But then Astaxanthin received a rousing endorsement from Dr. Joseph Mercola on a segment of the "Dr. Oz Show" last January.



Cysewski

"He said it was the one supplement you don't know about, but should be taking," said Gerald Cysewski, Cyanotech's founder and current chief scientific officer.

The company enjoyed another bump when the segment re-aired in March.

Sales at one of its local vendors — Down to Earth — moved swiftly after Mercola's endorsement.

"We've sold this product for years, but this was the first time we sold out," said Andy Malim, assistant manager of the store's wellness department.



PHOTOS COURTESY: CYANOTECH

Cyanotech operates out of the Natural Energy Laboratory of Hawaii Authority in Kailua-Kona on the Big Island.



BioAstin is marketed as an antioxidant that enhances skin, muscle and joint health. Spirulina Pacifica is a nutritional supplement.

Cyanotech Corp.

Micro-algae developer

Founder: Gerald Cysewski

CEO: Brent Bailey

Address: 73-4460 Queen Kaahamanu Hwy, Suite #102, Kailua-Kona, HI 96740

Phone: (808) 326-1353

Website: www.cyanotech.com

Cyanotech at-a-glance



Now, the two products each command about half of Cyanotech's market share.

The company reported sales of \$5.2 million in the fourth quarter of fiscal year 2011, which ended June 30, up 37 percent from \$3.8 million a year ago.

Cyanotech's stock price also began to move during that time. Since last December, it has hovered around \$3 and has approached \$4 — it closed at \$3.80 on Wednesday. It has been as high as \$5 a share and as low as close to \$1 during its financial troubles.

Last January, the company also brought in a new leader in CEO Brent Bailey, whose background is in con-

sumer products. His resume includes stints marketing instantly recognizable products such as Frito-Lay and Dial.

"It's a company that has to prove itself," Bailey said of Cyanotech.

Cysewski said the company added a few employees when its sales began to sail. It currently has 75 employees and is looking to add approximately five more, in addition to acquiring more infrastructure to support its growth.

"We may create other facilities," Bailey said. "And we'd like to stay in Hawaii, just because of the ideal conditions for our products."

Algae consultant Robert Henrickson

feels Cyanotech has a good chance of surviving.

"They're nimble enough to adjust and they've stayed focused on nutraceuticals," he said.

Henrickson is all too familiar with Cyanotech. The Hana, Maui, resident used to compete with it and has seen its ups and downs.

A big reason for Cyanotech's growth — and a key to its survival — is its expansion into global markets. With help from the U.S. Department of Commerce, it is now selling in nine international markets, including Mexico, India, Colombia and Turkey, said John Holman, director of Hawaii's Office of the U.S. Commercial Service.

This year, Cyanotech was one of 27 companies in the U.S. to receive a Presidential "E" Award, an honor bestowed on companies for doing business globally.

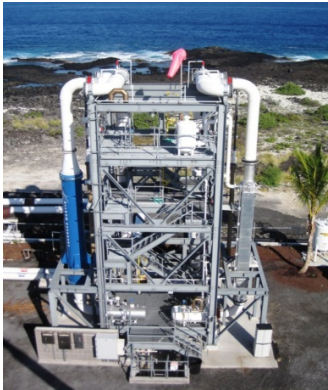
"In time, more investors will jump on board," Bailey said. "The products are becoming more recognized in the broader community."

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7.0 Ocean Thermal Energy Conversion (OTEC) Demonstration Facilities

There continued to be significant activity regarding OTEC at HOST Park in FY 2012. HOST Park continues to be seen as the world's preeminent OTEC research and demonstration site. Projects currently underway or planned will reinforce HOST Park's leadership as a test bed for this technology.



Makai Ocean Engineering officially opened the OTEC heat exchanger test facility at the in the Research Campus in July 2011. The test facility is a 40 foot tall tower that supports evaporators, condensers, seawater piping, and an accurately instrumented ammonia working fluid piping system. NAVFAC and ONR sponsored the facility as a cost-effective means to test the performance of heat exchangers on land using NELHA's existing seawater pipe infrastructure.

In addition to the Makai Ocean Engineering test tower, there was broad increased interest in OTEC in the past year. To provide for a transparent review process, NELHA issued a Request for Interest in October 2011 regarding proposals to construct an OTEC demonstration facility at HOST Park. NELHA received four proposals and selected the proposal from OTEC International LLC for further negotiations.

A term sheet was agreed upon and the NELHA BOD approved the project in concept. This led the way to further and more detailed negotiations regarding the sublease and numerous technical items associated with the demonstration facility which was proposed to be constructed near the main 55" pump station.



Key goals for the OTEC International test facility include: producing net electricity; testing whole system integration (1 MW net); high seawater flows and management; and advance HOST Park as a clean energy test bed.

The project is expected to be an excellent example of a public-private partnership and OTEC International is expected to expend over \$30 million in private funds to construct this test facility. It is projected to create almost 100 jobs during construction and expend \$10.4Million in local labor and material.

8.0 Marketing and Public Relations



NELHA's marketing efforts support the facility with television, magazines, literature, promotion, press familiarization tours, and exhibits at trade shows. Major trade show exhibits included the Asia Pacific Clean Energy Summit in Honolulu and the Oceans '11 Conference in Kona. To access the local television market NELHA was featured in a ½ hour primetime segment of "Hawaii: The State of Clean Energy" which aired on KHON and KHNL numerous times over a three month period. In addition, the Executive Director appeared on the KHON morning news.

Three press familiarization tours of HOST Park were hosted during the year. These were in conjunction with the Asia Pacific Economic Conference being held in Honolulu. These visits were focused on international media and included press from Hong Kong, Beijing and Guangzhou.

In terms of print media, NELHA was featured in the November 2011 issue of Hawaii Business Magazine in an article titled "Ocean Water Fuels Innovation in Kona". NELHA hosted two international conferences on ocean energy at HOST Park in FY 2012. This included a three-day conference on OTEC with the County of Hawaii and Okinawa Prefecture. Approximately 50 participants were in attendance. In addition, NELHA hosted a two-day meeting with the East-West Center and the Pacific Economic Cooperation Council, based in Singapore, on ocean energy issues. Approximately 50 participants attended this meeting.

NELHA also made presentations at numerous other events such as the Hawaii County Green Jobs Summit, UH Water Conference, and Kona Town Meeting. In terms of collateral material, NELHA created a new brochure (shown below) for distribution and displays for conferences.

Finally, working with the Friends of NELHA, approximately 3,000 visitors were hosted at the Hawaii Gateway Energy Center and were given educational tours of the facility.



HAWAII OCEAN SCIENCE AND TECHNOLOGY PARK

HOST is a master-permitted ocean science and technology park that stimulates economic development and diversification in Hawaii.

HOST is comprised of 870 acres of prime coastal property at Keahole Point, Kailua-Kona, on the Big Island of Hawaii.

HOST remains the only ocean science facility in the world which continually brings ashore high quality, pristine supplies of both warm surface and cold deep seawater 24 hours a day, 365 days a year.

HOST has a winning combination of natural resources, subtropical environment and community infrastructure that makes it a highly desirable location for new business enterprises.

HOST is the premiere choice for the location of a variety of leading edge research, education, and commercial enterprises capitalizing on the findings of science and technology.

CONSIDER YOUR FUTURE AT HOST PARK

FOSTERING INNOVATION
GROWING THE ECONOMY
BRINGING DIVERSITY TO LIFE

JOIN THE COMMUNITY OF ENTERPRISES BY THE SEA ...

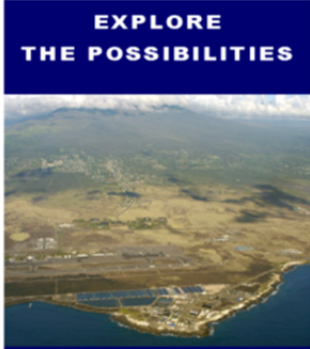
WHERE WE ARE CREATING THE INDUSTRIES OF TOMORROW ...TODAY

VISIT US AT WWW.NELHA.ORG

For more information, contact:



HAWAII OCEAN SCIENCE AND TECHNOLOGY PARK
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National Energy Laboratory of Hawaii Authority
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Kailua-Kona, Hawaii, USA 96740
Phone (808) 327-9585 Fax (808) 327-9586
Internet leasing@nelha.org



EXPLORE THE POSSIBILITIES

- Pristine warm seawater
- Pure cold deep seawater
- Year-round growing season
- Subtropical climate
- Calm ocean waters
- Island lifestyle
- Low-cost cooling
- Foreign-Trade Zone Status
- Enterprise Zone

At HOST PARK

BUSINESS INCUBATION WITH AN OCEANIC FLAVOR

- 870 ACRES OF PRIME COASTAL PROPERTY**
Master permitted
Long-term leases
- ACCESS TO DEEP OCEAN WATER**
Natural cooling to 4 degrees Celsius
World's largest, deepest ocean pipeline
Dual temperature seawater delivery system
- LOW ANNUAL RAINFALL**
Winterless climate
Year-round growing season
Sunniest location in coastal U.S.
- PRISTINE ENVIRONMENT**
- ENVIRONMENTAL MONITORING**
- ACCESS TO MAJOR PACIFIC RIM MARKETS**
Adjacent to international airport



Visitors landing at the Kona International Airport get a prime view of an amazing seaside oasis of open science-based businesses thriving in the midst of an otherwise barren tropical lava desert. This oasis is the heart of an exciting ocean science and technology park yielding exotic products from the sea.

The Hawaii Ocean Science and Technology Park (HOST) is a master-permitted industrial park that provides research support facilities for development of alternative energy and ocean-related technologies. Initially, the primary focus was on a promising method of "earth-friendly" energy production called "OTE" or ocean thermal energy conversion. Concurrent research in other areas showed the tremendous economic potential of the unique dual seawater supply. HOST Park can open the door for researchers to take their new ideas beyond research and demonstration to full commercialization, all at one location.

Proximity to an international airport, five minutes away, plays a vital role in helping the HOST Park clients get valuable products to the mainland as well as to Asian and other Pacific-rim markets fast.

The prospects for the future are even greater with new and existing tenant expansions and recently completed facilities to support cutting edge R&D in renewable energy. We serve as a demonstration site for many of the US National Energy Laboratories as well as many private sector companies.

We continue to seek interested start-ups, small businesses, investors, entrepreneurs, and researchers to join this growing community of enterprises by the sea at the HOST Park. Contact us today at www.nelha.org.

APPLICATIONS UNIQUE OPPORTUNITIES FOR NEW INDUSTRY DEVELOPMENT

- POSSIBILITIES**
Innovation
Business incubation
Research
Demonstration
Commercialization
- IDEAL SETTING FOR**
Ocean sciences
Aquaculture
Biotechnology
Renewable energy
Distributed energy resources
Alternate energy production
Solar energy applications
- DEEP OCEAN WATER APPLICATIONS**
Coldwater agriculture
Low-cost cooling
Deep seawater air-conditioning
Wide range of temperature regimes



9.0 Pipeline Infrastructure

NELHA operates one of the world’s only seawater utilities and provides both pristine surface and deep seawater throughout HOST Park. A listing of major pipelines is shown below. In addition, NELHA operates and maintains three major pump stations, four major (three fixed and one mobile) backup generators and an extensive seawater pipeline distribution system throughout the park.

PIPELINE DESCRIPTION	DEPTH (ft)	SURFACE SEA WATER	DEEP SEA WATER
40-inch diameter	2,210		13,400 GPM
28-inch diameter	69	9,700 GPM	
18-inch diameter	2,060		3,000 GPM
24-inch diameter	33	5,400 GPM	
55-inch diameter	3,000		27,000 GPM
55-inch diameter	79	40,500 GPM	

In addition, to routine maintenance on the system, three major projects were underway in FY 2012. This included the design of upgrades to the main 40-inch deep seawater pipeline. This pipeline is one of the oldest at NELHA and was installed in 1986. Work to repair bridles, which secure the pipeline to the ocean floor at a depth of 500 feet, is necessary to extend the life of the pipeline. In addition, NELHA is in the process of designing a new pipeline distribution system for the upper elevations of the park to open up some of the last remaining land available for development in the park.

Finally, NELHA has initiated efforts to provide additional remote data collection for energy consumption, seawater flows and water quality. Instrumentation being installed with funds from the NREL grant will be “double purposed” for this initiative.

10.0 Analytical Laboratory

NELHA’s Analytical Laboratory specializes in environmental sampling and marine water chemistry sample analysis. The NELHA Analytical Laboratory was received its certified acceptable proficiency rating in FY 2012 from the US Environmental Protection Agency’s Discharge Monitoring Report-Quality Assurance Program on routinely performed water chemistry analytes. The NELHA Analytical Laboratory collects, process, and disseminates analytical and biota study information needed to protect NELHA’s valuable seawater and groundwater resources.



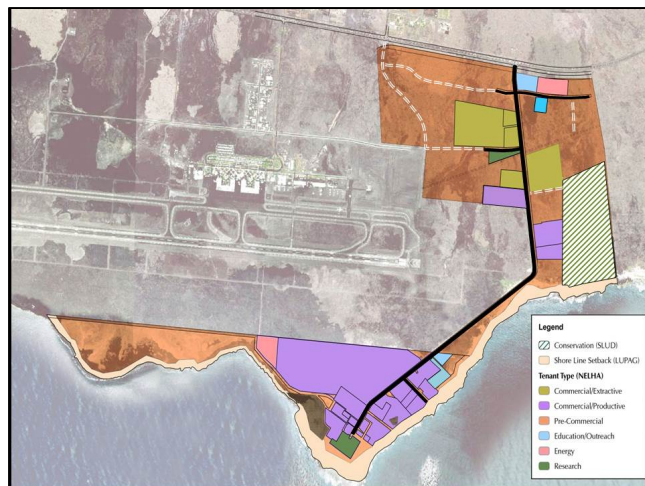
The environmental monitoring activities the NELHA Analytical Laboratory performs include sample collection, analysis, and data recording of environmental samples from NELHA’s seawater pipeline distribution system, groundwater wells, anchialine pond water, and the near shore seawater environment fronting NELHA’s shoreline.

Yearly reports are issued in compliance with regulatory requirements of the Hawaii County Planning Department and State of Hawaii government agencies including the Department of Land and Natural Resources, the Office of Environmental Quality Control, and the Department of Health. NELHA has established a forward-looking, multi-disciplinary environmental monitoring program and has maintained and operated an analytical laboratory to meet all of its environmental monitoring permitting requirements.

Much of the environmental monitoring work involved the implementation of NELHA’s Comprehensive Environmental Monitoring Program (CEMP), collecting and analyzing samples from more than 120 sites located both onshore and offshore. The CEMP allows NELHA to monitor its pristine environment and serves as an early detection system should any irregularities in onshore effluent disposal occur, and observing the pristine offshore environmental water quality. The FY 2012 CEMP Annual Report was submitted to the Hawaii County Planning Department, marking 31 continuous years of reporting by NELHA.

11.0 Land and Leasing

NELHA operates on the 870-acre HOST Park via a General Lease from the State of Hawaii Department of Land and Natural Resources (DLNR). This 45-year lease was initially received in 2001. As such, as of 2012 only 34 years was remaining on



the

lease. To allow for long-term leases to new businesses, NELHA sought and received from the DLNR a lease extension to extend the term of the master lease to 65 years or 2066.

NELHA saw a significant amount of lease activity in FY 2012. As shown in the table below, activity included renewing existing agreements, new leases, negotiation of existing leases during rent re-opening periods, merger of existing leases and review of a multitude of new projects.

Number new agreements including subleases	7
Number new tenants	3
Number new subleases	1
Potential projects (some NELHA staff time investment)	8
Potential projects (significant NELHA staff time investment)	12
Total potential projects	20
Number of promising long term projects	2

12.0 CEROS

The National Defense Center of Excellence for Research in Ocean Sciences (CEROS) was created by congressional action in 1992. CEROS was established through cooperation between the Defense Advanced Research Projects Agency (DARPA) and the State government for the purpose of conducting research and development (R&D) activities of interest to the Department of Defense on such topics as ocean environment preservation technology, new ship hull design concepts, shallow water and surveillance technologies, ocean measurement instrumentation, and the unique properties of the deep ocean environment.

The purpose of CEROS is to solicit and support innovative technology development for national maritime military applications and sustained technology-based economic development in Hawai'i. CEROS supports R&D projects that are intended to produce measurable results or products within 12 months. The CEROS program has been formulated as an exploratory and advanced technology development program, with little, if any, basic research. The project selection process is based on priorities that are issued in published solicitations, emphasizing near-term, tangible results. In selecting projects to fund, trade-offs among cost, performance, and schedule are evaluated relative to programmatic goals and planned procurement schedule, and appropriate risk-reduction

strategies are identified and implemented. Proposals can include options for an extended period of performance. However, incremental or follow-on funding of any such option is not guaranteed.



CEROS Historical Funding



Grant/Agreement Term	Federal Funding Year	Federal Funding Amount	# Abstracts Evaluated	# Proposals Invited	CEROS Projects Funded (\$)	CEROS Projects Funded (#)
MDA972-93-1-0008 Feb 22, 1993 – Jun 30, 1998	FY93	\$5,070,000	--	79	\$4,496,887	11
MDA972-94-1-0010 May 23, 1994 – Jun 30, 1999	FY94	\$5,449,974	160	28	\$5,939,919	16
	FY95	\$6,753,822	114	32	\$5,634,768	11
	FY96	\$6,534,000	95	31	\$5,445,811	12
MDA972-97-2-0001 Sep 1, 1997 – Jun 30, 2003	FY97	\$6,518,000	103	31	\$5,779,261	16
	FY98	\$6,714,917	66	28	\$6,347,637	19
	FY99	\$6,785,759	99	27	\$6,201,191	15
	FY00	\$6,788,888	96	25	\$6,441,440	16
	FY01	\$4,900,000	69	17	\$4,524,611	14
MDA972-02-2-0002 May 15, 2002 – Mar 31, 2009	FY02	\$4,668,500	66	17	\$4,055,811	10
	FY03	\$5,623,500	100	21	\$4,898,907	15
	FY04	\$6,905,000	82	21	\$6,247,373	19
	FY05	\$6,905,000	68	24	\$6,119,918	15
	FY06	\$6,155,000	79	24	\$5,999,550	17
HR0011-07-2-0005 Apr 1, 2007 – Present	FY07	\$5,505,000	71	29	\$4,769,356	12
	FY08	\$9,905,000	102	32	\$8,955,549	19
	FY09	\$9,890,000	68	28	\$8,107,629	19
	FY10	\$7,885,000	80	22	\$6,959,959	14
	FY11	--	72	--	--	--
TOTALS		\$118,957,360	1590	516	\$107,316,739	270

The CEROS Technical Program seeks to identify leading-edge, value-added technologies that support Department of Defense requirements, leverage unique facilities and infrastructure available in Hawai'i, and foster potential commercial development. Five technical topic areas covered by the CEROS Program were identified in the originating congressional legislation as follows:

- Ocean environmental preservation technology;
- New ocean platform and ship concepts;
- Shallow water surveillance technologies;
- Ocean measurement instrumentation/ocean engineering tools; and
- Unique properties of the deep ocean environment.
- Improvements in logistics, operations, maintenance, and training

CEROS has also supported a complementary mission element under its Outreach Program, augmenting the Technical Program through an outreach effort primarily focused on technology transition and industry development. CEROS hosts an

annual Industry Day event to provide the high technology community with information on the current needs of the Department of Defense. Industry Day speakers typically include DARPA Program Managers, representatives from DoD research facilities, and S&T advisors from local military commands. Industry participants are also provided opportunities to meet one-to-one with DoD personnel to explore technology requirements and potential project concepts.

In FY 2012, CEROS continued to operate under a no cost extension of the DARPA-NELHA Cooperative Agreement. This no-cost extension was established by modification of the agreement in August 2011, which set overall “effective period” to be extended to August 31, 2012 for program activities supported by federal funds received over the course of 4 fiscal years (FY 2007-2010).

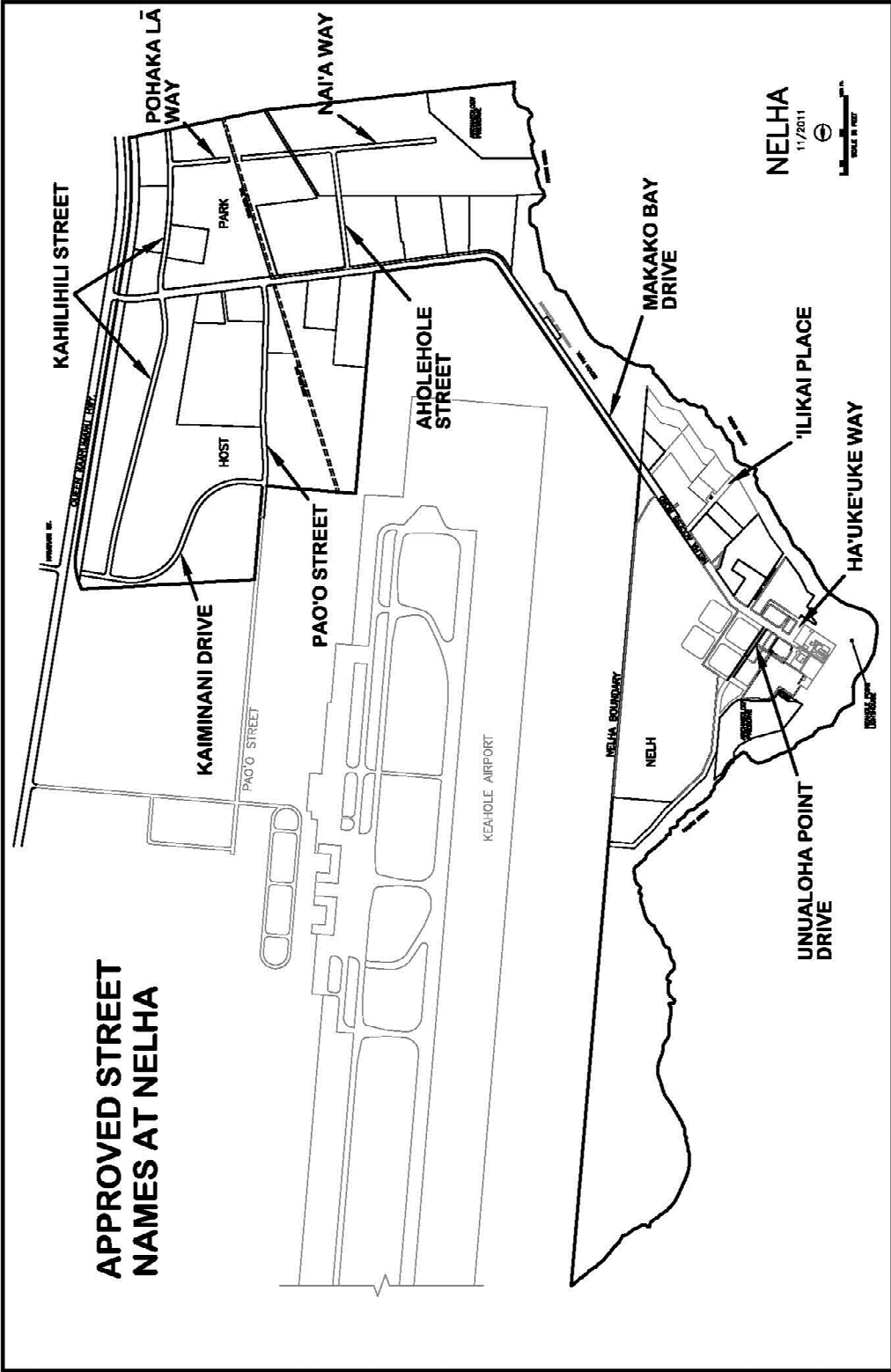
CEROS continued to work with the fourteen projects selected under the CEROS FY 2010 program. By June 2012, nine of the fourteen projects had been completed their contract performance periods and submitted final deliverables. The five remaining FY 2010 contracts continue to operate under no-cost extensions and should be completed by August 2012.

Having received no new federal appropriations of program funding in FY 2011 nor FY 2012, and with no further funding expected in FY 2013, a plan is underway to conclude CEROS operations and close out the program in accord with the relevant terms of the DARPA-NELHA Cooperative Agreement in early FY 2013.

13.0 Road Infrastructure

NELHA is in the process of designing new roads in the upper elevations of the park in conjunction with the pipeline design effort listed above. This design is being aided with approximately \$400,000 in Federal Highway Administration funds. The new roads, when constructed will open up much of the remaining land at the upper elevations of the Park.

In addition, it is important to note that NELHA, working closely with County of Hawaii, was able to have road names officially designated for all existing and planned roads. This will assist in emergency response for businesses in the park and provide assistance with marketing efforts for businesses in the Park.



FINANCIAL STATEMENT
(For the period July 1, 2011 to June 30, 2012)

REVENUES

Land Use Fees	\$1,537,817.46
Royalties	99,656.57
Reimbursable	2,791,785.20
Interest Received	26,848.94
Other	1,920.10
Percentage Rent	259,258.00
Subtotal	4,717,286.27

EXPENDITURES

Salaries	1,291,418.33
Operations (including OHA transfers)	3,342,965.61
Subtotal	4,634,383.94

FINANCIAL POSITION
(as of June 30, 2012)

Special Fund Cash Balance July 1, 2011	1,483,441.78
Prior Year Unrequired claims	25,807.09
Special Fund Revenues	4,717,286.27
Subtotal	6,226,535.14
Special Fund Expenditures	4,274,609.59
Transfers to OHA-Ceded land	359,774.35
Special Fund Cash Balance	\$1,592,151.20

Board of Directors

John DeLong, Chair

President, Hawaiian Cement
At Large Member appointed by Governor

Makani Maeva, Vice-Chair

Director, Vitus Group
At Large Member appointed by Governor

Michael Buchal

At Large Member appointed by Governor
Owner, Aquaculture Consulting Hawaii, LLC

Bobby Command

Executive Assistant, Mayor's Office
Ex-Officio – Mayor, County of Hawaii

Dr. Patricia Cooper Ph.D.

Dean, Graduate Division, University of Hawaii
Ex-Officio – President, University of Hawaii

Dr. Gerry Cysewski, Ph.D.

Chief Science Officer/Executive Vice-President, Cyanotech Corporation
Ex-Officio – Tenant Representative

Richard C. Lim

Director, Department of Business, Economic Development and Tourism
Ex-Officio – Director, Department of Business, Economic Development and Tourism

Todd Low

Aquaculture & Livestock Support Services
Hawaii Department of Agriculture
Ex-Officio - Vice-Chair, Research Advisory Committee

Board of Directors

H. Brian Moore

Senior Vice-President, Pacific Guardian Life Insurance Co, LTD
Ex-Officio – Hawaii Strategic Development Corporation

Assumpta Rapoza

Director Risk Management, Hawaii Medical Service Association
Ex-Officio – Hawaii Technology Development Corporation

Dr. Donald Thomas Ph.D.

Geochemist and Director of Center for the
Study of Active Volcanoes
University of Hawaii at Hilo
Ex-Officio - Chair, Research Advisory Committee

Russell Y. Tsuji

Administrator, DLNR Land Division
Ex-Officio – Director, Department of Land and Natural Resources

Larry Visocky

Plant Manager, KOYO USA Corporation
Ex-Officio – Tenant Representative

NELHA employees as of June 30, 2012

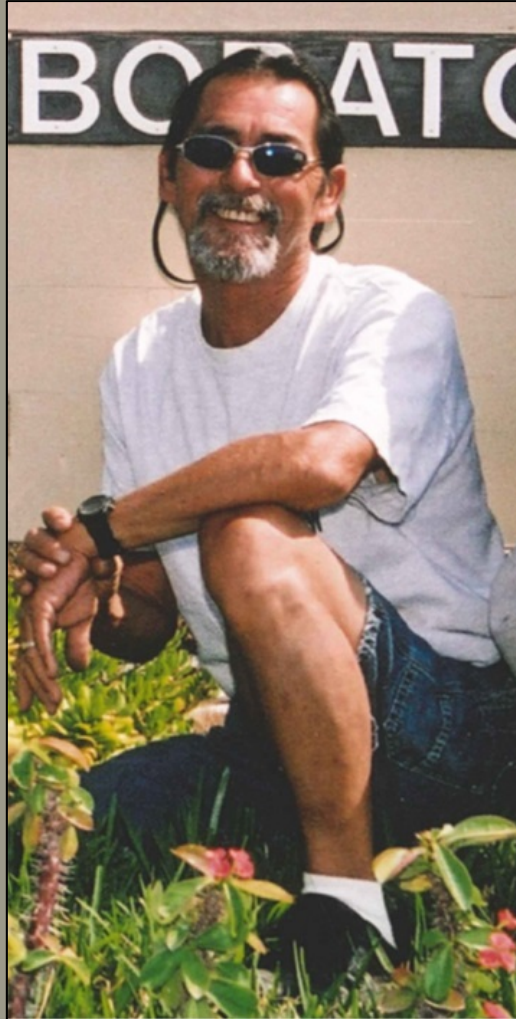
POSITION TITLE	INCUMBENT
NELHA Executive Director	Barbour, Gregory
NELHA Senior Secretary	Appleby, Karen
NELHA General Laborer II	Debina, Chad
NELHA Secretary III	Espinueva, Georgette
NELHA Maintenance Mechanic I	Gibo Jr., Celestino
NELHA Groundskeeper II	Haleamau, Karin
NELHA Fiscal Officer	Kaniho, Sheryll
NELHA Engineer	Kelly, Thomas
NELHA Accounting Clerk III	Miranda, Jerrae
NELHA Maintenance Mechanic I	Mitchell, Anthony
NELHA Engineering Project Coordinator	Nichols, Jeffrey
NELHA Water Quality Lab Mgr	Olson, Keith
NELHA Electrician II	Pierce, Eugene
NELHA Utility Electrician	Pierce, Thomas
NELHA Vehicle Const Equip Mech	Robinson, Richard
NELHA Tenant & Contracts Specialist	Sombardier, Laurence
NELHA Operations Manager II	War, Jan
NELHA Marketing Intern	Hutchison, Alexandra
NELHA Laboratory Intern	Ho, Kateyln
NELHA Laboratory Intern	Sims, Zeo
NELHA Laboratory Intern	Sugai, Christopher
CEROS Technical Director	Hilton, Alan
CEROS Program Manager - Outreach	Brewbaker, Jacquie
CEROS Fiscal Assistant	Chestnut, Val
CEROS Research Administrator	Fausak, Lee
CEROS Contracts and Grants Administrator	Mau, Donna

Appendix 1 – Timeline of Major Events

- 1974 Natural Energy Laboratory of Hawaii, operated by the University of Hawaii, was established as a response to the first oil crisis.
- 1979 Mini-OTEC was anchored offshore of Keahole Point, demonstrating the world's first production of net electrical power via closed-cycle OTEC.
- 1980 Laboratory facilities and its first pipeline to draw deep seawater from 2,000 feet and surface seawater from 45 foot depths were completed.
- 1981 Shore-based OTEC research began with a project testing biofouling and corrosion countermeasures for the closed cycle OTEC process.
- 1984 Legislation authorized commercial activities, allowing the Laboratory to host new business ventures.
- 1985 Legislature authorizes NELH to assume the management responsibility of the Puna Geothermal Facility to NELHA. Facility consists of a 3 mW electric power plant and the Noi'i O Puna Research Center
- 1986 Hawaii Ocean Science and Technology (HOST) Park was created on an adjacent 500+ acres and operated by the Hawaii Technology Development Corporation (HTDC). US DOE and HOST Park combine resources to install 40" deep seawater and 28" surface seawater system at Keahole Point. Laboratory building air conditioning system converted to deep seawater cooling. Legislature appropriates funds for 18" deep seawater pipeline.
- 1987 Heat and Mass Transfer Scoping Test Apparatus (HMTSTA) open cycle OTEC test tower constructed and operated by Pacific International Center for High Technology Research (PICHTR).
- 1989 Puna Geothermal Facility and HGP-A well shut down. The Aluminum Company of Canada (ALCAN) develops program at the Laboratory for testing "roll bonded" aluminum heat exchangers.
- 1990 NELH, operated by UH, and HOST Park, operated by HTDC, merge to become the Natural Energy Laboratory of Hawaii Authority (NELHA).
- 1992 210 kW open-cycle OTEC Net Power Producing Experiment (NPPE) constructed at NELHA and operated by PICHTR.
- 1994 Micro-tunneling begins to construct two 66" diameter tunnels under the shoreline and offshore reef as a pipeline protection crossing in preparation for NELHA's new 55" warm and cold seawater pipelines.
- 1995 CEROS transferred from HTDC to NELHA
- 1998 NPPE Open-cycle OTEC power plant decommissioned.

- 2000 Construction begins for NELHA's new 55" offshore intake pipelines and pump station. Planning and design process started for new Hawaii Gateway Distributed Energy Center.
- 2002 Successful deployment of 55" deep seawater pipeline offshore and construction of initial phase of onshore pump station using specially designed fiberglass reinforced (FRP) intake canisters. First deep seawater desalinization project begins experimentation to develop bottled drinking water.
- 2003 NELHA tenant count reaches 34. Non-profit "Friends of NELHA" (FON) formed to assume basic public relations and outreach functions for NELHA.
- 2004 Construction of Hawaii Gateway Distributed Energy Center completed.
- 2005 55" warm and cold seawater pump station and distribution pipelines completed.
- 2006 NELHA Foreign Trade Zone status granted by US Department of Commerce. Keahole Solar Power LLC begins construction of solar thermal research and demonstration facility. Five leases to desalinize deep seawater to produce boutique drinking water.
- 2007 Cellana in partnership with Royal Dutch Shell begins construction of a 6 acre micro alga to biofuels research center.
- 2010 Makai Ocean Engineering begins construction of corrosion lab and heat exchanger test tower to investigate the use of aluminum alloys for OTEC.
- 2012 UH Economic Research Organization (UHERO) completes first economic impact study regarding HOST Park. Results indicate economic impact and job creation is much higher than anticipated and is almost \$90 million annually and 600 jobs. Master Plan and Strategic Plans updated. Federal grants totaling almost \$3.5 million received for renovation of Main Administration building and micro-grid infrastructure for the Research Campus.

In Memoriam



Eugene Pierce

1956 - 2012

NELHA Electrician II



