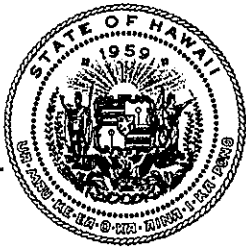


# **SB 672**

## **RELATING TO THE PACIFIC INTERNATIONAL SPACE CENTER FOR EXPLORATION SYSTEMS**

Authorizes the director of finance to issue general obligation bonds to the Pacific international space center for exploration systems to purchase its headquarters and test facility and appropriates funds to the Pacific international space center for exploration systems to execute its five strategic initiatives.

PSM/EDT, WAM



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

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Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804  
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DAVID Y. IGE  
GOVERNOR

LUIS P. SALAVERIA  
DIRECTOR

MARY ALICE EVANS  
DEPUTY DIRECTOR

Statement of  
**LUIS P. SALAVERIA**  
Director

Department of Business, Economic Development & Tourism  
before the

**SENATE COMMITTEE ON  
PUBLIC SAFETY, INTERGOVERNMENTAL AND MILITARY AFFAIRS**

Wednesday, February 18, 2015  
2:50 p.m.  
State Capitol, Conference Room 016

in consideration of

**SB 672  
RELATING TO THE PACIFIC INTERNATIONAL SPACE CENTER FOR  
EXPLORATION SYSTEMS.**

Chairs Espero and Wakai, Vice Chairs Baker and Slom, and members of the Committees. The department supports the intent of this bill to authorize the Director of Finance to issue general obligation bonds to the Pacific International Space Center for Exploration Systems (PISCES) to purchase its headquarters and test facility and appropriate funds to PISCES to enable it to execute its five strategic initiatives.

PISCES has made significant progress in applied research in planetary surface systems technologies over this past year. For example, PISCES is pioneering advances in basalt construction, with the testing of four basalt concrete types in a Hilo sidewalk set to begin in March 2015. Basalt 3D fabrication involving laser sintering of basalt is progressing in the PISCES laser lab. Robotics testing and rover systems upgrades have enabled five tests at PISCES analog sites on Hawaii Island over the past year.

PISCES is also promoting workforce development in aerospace, including STEM involvement with Hawaii high school students, internships for thirteen (13) college students with Hawaii connections during the summer of 2014, with an internship program in the planning stages for 2015. In addition, an innovative lunar surface flight experiment partnering PISCES,

NASA, and two Hawaii high schools is also underway, exploring dust removal technologies that eventually will be tested on the surface of the moon.

Partnerships with NASA headquarters, Kennedy Space Center, Johnson Space Center and AMES Space Center are also under development. These projects hold great promise to broaden Hawaii's economic base, ranging from the manufacture of basalt concrete and rebar to the development of a pioneering ground station for laser-based satellite communications systems as well as payload processing facilities for commercial space flight.

PISCES project work has increased over the last two fiscal years to the point where funding to hire additional required staff has not been available. In addition, CIP funding appropriated by the Legislature last fiscal year (to enable a land purchase for PISCES' proposed aerospace technology park) was not released by the previous Administration.

Notwithstanding, PISCES has gained significant interest from institutions wishing to partner with PISCES in academia, the federal government, foreign countries, and the private sector involved with aerospace. Continued funding will enable PISCES to realize the substantial economic, scientific, and educational benefits from the very promising projects already underway. Additional updated information on PISCES programs and activities may be found online at: <http://www.pacificspacecenter.com/>.

DBEDT defers to the Department of Budget and Finance to assess the impact of this request for general funds and the general obligation bonds on the State's Financial Plan.

Thank you for the opportunity to testify on this bill.

TESTIMONY BY WESLEY K. MACHIDA  
DIRECTOR, DEPARTMENT OF BUDGET AND FINANCE  
STATE OF HAWAII  
TO THE SENATE COMMITTEES ON PUBLIC SAFETY, INTERGOVERNMENTAL  
AND MILITARY AFFAIRS AND  
ECONOMIC DEVELOPMENT AND TECHNOLOGY  
ON  
SENATE BILL NO. 672

February 18, 2015  
2:50 P.M.

RELATING TO THE PACIFIC INTERNATIONAL SPACE CENTER FOR  
EXPLORATION SYSTEMS

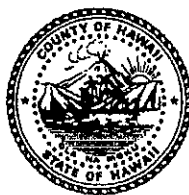
Senate Bill No. 672 authorizes the Director of Finance to issue general obligation bonds to the Pacific International Space Center for Exploration Systems (PISCES) to purchase its headquarters and test facility and appropriates funds to the PISCES to execute its five strategic initiatives.

The Department has technical comments on this bill. Federal tax law requires, among other things, that tax-exempt general obligation bond proceeds be used to finance projects/programs that serve public purposes. It appears that private entities (which also include federal government agencies) may derive benefit from this legislation. Should private entities benefit from PISCES' strategic initiatives or from the development of their headquarters/testing facility, tax-exempt general obligation bonds cannot be used for this purpose. The State would need to issue taxable general obligation bonds at a higher cost.

In addition, as funding for these projects are not in the proposed Executive Budget, should this bill proceed or pass the Legislature, an amount for the corresponding annual debt service will need to be included in the Legislature's version of the budget.

Thank you for the opportunity to provide testimony on this measure.

DENNIS "FRESH" ONISHI  
Council Member  
District 3



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## HAWAII COUNTY COUNCIL

25 Aupuni Street, Hilo, Hawai'i 96720

February 12, 2015

The Honorable Senator Will Espero, Chair  
and Members of the Committee on Public Safety, Intergovernmental, and Military Affairs

The Honorable Senator Glenn Wakai, Chair  
and Members of the Committee on Economic Development and Technology

Dear Chair Espero, Chair Wakai and Joint Committee Members,

Thank you for the opportunity to provide comments in support of Senate Bill No. 672.

This bill aims to provide supplemental state funding to support administrative tasks, the purchase of equipment, strategic program initiatives, and development of the PISCES headquarters and test facility.

Working with NASA and international partners, PISCES will conquer the new challenges that will face astronauts living beyond low Earth orbit. They are:

- Fabrication of basaltic-based construction materials via 3-D printing.
- Living off the land and extracting water and fuel from the lunar and Martian soil.
- Additional development of an existing planetary analog test site.
- Working with NASA and local high school students to design an experiment that will be sent to the Moon in 2015 as part of a Google Lunar X-Prize mission.
- An international college robotics space mining competition.

Each of these initiatives is an investment in the future that is worthy of your support. I respectfully ask that you recommend approval of this bill.

Sincerely,

A handwritten signature in black ink, appearing to read "Dennis Onishi".

Dennis "Fresh" Onishi  
Hawai'i County Council Member



February 11, 2015

To whom it may concern,

**Subject: Testimony for SB672 PISCES Operations and Funds for purchase of Facility**

I currently serve on the PISCES Board of Directors and am the Managing Partner of Near Earth LLC, an investment bank covering the space and satellite industry. I am submitting this testimony in strong support of this bill to provide funding to PISCES at a level that I believe is commiserate with the organization's potential to drive innovation in the aerospace and other high technology sectors for the State of Hawaii, inspire a new generation of Hawaiian scientists and engineers, and be a major contributor to the future space exploration initiatives of the U.S. and its international partners.

In the recent State of the Union address, President Obama said we are going to space to stay. To stay we will need to develop new systems to live, travel and work in space and on the surfaces of places like the Moon and Mars. The Island of Hawai'i is the ideal location to develop and test these new surface systems and PISCES is the right organization to support and lead those important efforts, but it will need adequate levels of initial funding to do so.

PISCES impact on Hawaii's future is not limited to the role it will play in space exploration. Many of the technologies being developed at PISCES facilities involve such things as advanced robotics, 3D printing, and laser communications. These technologies will be important growth sectors in the global economy. Another important benefit to Hawaii may come from advances being made at PISCES in sustainable (in situ) resource utilization of the State's abundant basaltic fine material.

I therefore encourage you to pass SB672 with the requested funding allocation. I am available to answer any questions you may have and can be reached at (203) 355-3527 or by email at [hoyt@nearearthllc.com](mailto:hoyt@nearearthllc.com). Thank you for the opportunity to testify on this bill.

With much mahalo,

A handwritten signature in black ink, appearing to read "Hoyt Davidson", written in a cursive style.

Hoyt Davidson

## TESTIMONY IN SUPPORT OF:

SB672-- RELATING TO THE PACIFIC INTERNATIONAL SPACE CENTER FOR EXPLORATION SYSTEMS (PISCES)

Dear Members of the 28<sup>th</sup> Hawaii State Legislature,

I am writing in support of the passage of SB672, which provides operating expenses for PISCES and funds for the purchase of land and buildings for a PISCES headquarters and test facility.

I am a registered architect in the State of Hawaii and principal of a Ferraro Choi and Associates, Ltd., a sustainable oriented architectural firm. Our clients include a wide variety of state and federal agencies such as the University of Hawaii, NOAA, NSF, and USDA to name a few. Our projects are specifically chosen to support science and technology which contribute to our state and our country's knowledge base and provide stewardship of our fragile island environment.

PISCES has made significant progress in applied research in planetary surface systems technologies this past year. Achievements include advances in basalt construction, with testing of four basalt concrete types in a Hilo sidewalk set to begin in March 2015. Basalt 3D fabrication involving laser sintering of basalt is progressing in the PISCES laser lab. Robotics testing and rover systems upgrades have enabled five tests at PISCES analog sites on Hawaii Island this year. Workforce development efforts include STEM involvement with Hawaii High School students, internships for thirteen (13) college students with Hawaii connections in summer of 2014, with an internship program in planning stages for 2015. An innovative lunar surface flight experiment partnering PISCES, NASA and two Hawaii high schools is underway exploring dust removal technologies that will be tested on the surface of the moon. Partnerships with NASA headquarters, Kennedy Space Center, Johnson Space Center and AMES Space Center are underway or in the planning stages. PISCES is very much a going concern with projects in motion that involve both the public and private sector. These projects have great promise to broaden Hawaii's economic base, ranging from manufacture of basalt concrete and rebar to enabling data transfer via laser, and payload processing for space flight.

PISCES project work has increased over the last two funding years to the point where funding available to hire staff has not been able to keep up with our need for the additional effort required. Even so, PISCES has gained significant attraction/interest from academia, the federal government/NASA, foreign countries and the private sector for aerospace. Continued funding will enable the continuation of the very promising projects underway.

Your affirmative consideration of this bill will be deeply appreciated.

Mahalo for your serious consideration of this request,



Joseph J. Ferraro FAIA, LEED AP  
Principal



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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Wednesday, February 11, 2015 4:28 PM  
**To:** PSMTestimony  
**Cc:** rfvromo@gmail.com  
**Subject:** Submitted testimony for SB672 on Feb 18, 2015 14:50PM

**SB672**

Submitted on: 2/11/2015

Testimony for PSM/EDT on Feb 18, 2015 14:50PM in Conference Room 016

Submitted By	Organization	Testifier Position	Present at Hearing
Rodrigo & Charlotte Romo	Individual	Support	No

Comments: My wife and I, as people who want to see our state advance in technology and offer career paths to our young students from High School and College, strongly support this bill to provide funding for PISCES. The type of projects that PISCES is currently involved with not only place Hawai'i on the leading edge of space exploration, but they also help develop technologies that will help Hawai'i become more self sustainable. There is no down side to the funding of this organization. Sincerely, Rodrigo & Charlotte Romo.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)