

Be Proactive Not Reactive to the Next Island Blackout: A Case Study for Achieving 100% RENEWABLE Energy From The sun + Multiple Storage For HAWAII Residences with <3years Payback & Off-grid Operation

The recent September 20, 2017 Puerto Rico hurricane destroyed the centralized utility grid power for months showing the value of 100% renewable energy with optional off-grid operation in Hawaii.

I'm striving to be a catalyst by optimizing my residential clean energy systems to point to the shortest ROI (return on investment) that can be achieved via lower price packaging of properly sized rooftop solar-PV, solar hot-water thermal systems integrated with electrical battery storage, hot-water thermal storage and cold thermal storage and an optimized home energy management system (HEMS) for time of use (TOU) of key household appliances for 6 days a week by using my rooftop solar energy system with multi-storage and optimized HEMS. For the month of September 2017 I was connected to the grid for a total of only 10.5 hours. I started by using battery storage and PV only. My monthly bill fell by only 50%, projecting a dismal 16 year payback

After 10 months of refining the system by adding hardware and software modifications/improvements we reduced to the point where my bill has dropped from over \$500 a month to under \$20 a month.

This system, taking full advantage of the state and federal tax credits and rebates reduces ROI to <3 years due to off-grid operation cost savings. The ROI is shown in Figure 1. The full system price of \$29,500 reduced to \$13,511 by taking full advantage of federal and state tax credits.

Figure 2 tracks my electricity use for 6 years going back to January 2012. The orange line is kWh/month, the blue line is \$/month. There is a drop-off in dollars when HECO lowered its average kWh cost from 35.7 cents to 24 cents. The dramatic drop-off comes June 2016, when I began installing my solar systems (solar phase 1). Subsequent savings are shown when I added additional clean technology features.

A side benefit of achieving 100% renewable energy is eliminating HECO's infamous "Duck Curve" by absorbing the excess PV energy in the middle of the day (low back of duck), and using that energy to shave the evening peak (head of the duck).

So rather than requiring new home building energy codes, the state of Hawaii should require homes be constructed with ~5kWh solar-PV + 10kWh battery storage + 80 gallon modified solar thermal/PV/battery/electric water heater with optional home designs for

solar-A/C cold-thermal storage and solar pool pump, leaving only the clothes dryer and oven/stove requiring HECO's electricity.

Future home roofs should be designed for best solar-PV generation. Properly oriented solar panels (facing West & East) can extend solar-PV generation by 1 to 2 hours in the evening and morning and Bifacial panels will generate 20% more energy with generation equal to having a single axis tracker without the added costs.

On June 1, 2016 I installed a Poncho's Solar 7kW rooftop solar-PV + 5.5kW Tabuchi Electric solar inverter control system with a 10kWh Panasonic Li-ion battery for storage post-NEM connection to the grid (no export/selling back to the grid) and a single panel solar thermal hot water system with 80 gallons of storage. After the 1st month the monthly utility bill from HECO was only reduced by ~50% to \$180, leaving a \$180/month HECO bill. This results in an ROI of 16 years for the \$29.5K system proving battery storage alone is not a good investment.

To identify areas to further reduce grid-buy, three different energy monitoring systems were used for real-time and off-line energy usage analysis with 1 hour down to 5 seconds data resolution.

I pinpointed daily energy demand spike so I could determine the best alternative renewable energy source and to adjust time of use to coincide with peak afternoon solar PV generation and to add controllable HEMS devices to further reduce grid-buy. This required energy usage data resolution of 1 minute and not the typical 1 hour. The Bidgely energy usage monitor from Hawaii Blue Plant Foundation with 5 minute data read out resolution on my smart phone app did allow immediate detection of key house hold appliance energy spikes in real time.

The top energy demand household appliances were: #1 Air Conditioner at 18-42kWh/day, #2 Hot Water Heater at 16kWh/day, #3 clothes dryer at ~12.0kWh/day, #4 refrigerator/freezer at 7.2kWh/day, #5 pool pump at 6.5kWh/day and #6 room lights at 2kWh/night. Switching to CFL (Compact Florence Lamps) and LED big screen TV from plasma screen was noticeable as was adjusting time of use (TOU) washing clothes and dishwasher only during peak solar PV generation day time between 11AM and 3PM.

With solar PV A/C (air conditioner) I turned my living space into a cold thermal storage by reducing day time peak room temperature from

87oF to 68oF. The cool carried into the evening and I eliminated up to 12kWh evening consumption. I modified the solar thermal/PV/battery/electric water heater to super charge water to >165oF with storage capacity for 1 full day and eliminated 16kWh evening consumption. By timing my washer/dryer to be used in the middle of the day, I eliminated 10kWh evening consumption. A refrigerator/freezer on/off timer with overnight battery discharge eliminated 7.2kWh/day grid-buy, solar-PV pool pump eliminated 5.8kWh/day grid-buy and overnight battery discharge for night lights eliminated 2kWh/night grid-buy.

In Figure 2, solar phase 1 optimized the HEMS. Solar phase 2 involved inverter control system software upgrade to reduce grid-buy by 5.6kWh/day. I further modified the solar-PV and battery discharge electric water heater to reduce another 8kWh/day and solar PV-A/C with cold thermal storage reduced consumption by another 4-12kWh/day. Solar phase 3 involved installing a new inverter with dual battery so that 24+ days a month I was operating with 100% renewable energy (off-grid operation).

The economic cost savings based on daily cost of electricity (D-COE) for each phase is listed below:

- 1) Pre-solar home energy usage was 47kWh/day and 100% HECO grid-buy so at the current rate of 30¢/kWh the total D-COE was \$14.10/day.
- 2) Solar phase 1 for Oct 2016 D-COE was \$6.17/day reducing the average rate to 13.1¢/kWh based on (15kWh/day grid-buy X 30¢/kWh = \$4.50/day from HECO) + (13kWh/day PV-generation X 3.2¢/kWh = 41.6¢/day from PV) + (6.6kWh/day battery discharge X 10.8¢/kWh = 71.3¢/day from battery) + (16kWh/day Hot thermal storage X 3.4¢/kWh = 54.4¢/day from Hot thermal storage).
- 3) Solar phase 2 for July 2017 D-COE was \$2.44/day reducing the average rate to 5.2¢/kWh based on (1.8kWh/day grid-buy X 30¢/kWh = 54¢/day from HECO) + (20kWh/day PV-generation X 3.2¢/kWh=64¢/day from PV) + (6.6kWh/day battery discharge X 10.8¢/kWh = 71.3¢/day from battery) + (16kWh/day Hot thermal storage X 3.4¢/kWh = 54.4¢/day from Hot thermal storage).
- 4) Solar phase 3 for September 2017 D-COE was \$2.18/day reducing the average rate to 4.6¢/kWh based on (0.4kWh/day grid-buy X



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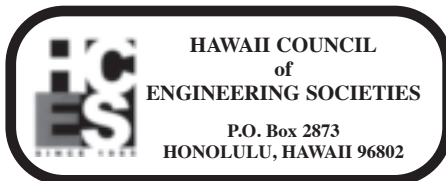
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WILIKI MAILING LIST

Additions and/or corrections to the Wiliki mailing list should indicate the proper society, institution or association. Corrections to email addresses should be submitted to your society coordinator.



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E-Week Call for Exhibits

HCES is inviting you to participate in our Engineer's Week public outreach event. February 17, 2018 at Windward Mall Center Court, 10am-2pm.

Welcoming static displays, interactive exhibits, and volunteers. Robotics skills event featuring elementary and middle school teams will be held in concurrently.

Contact Kristen Yoshida at kyoshida@bchdesign.com for more information.

NOMINATIONS WANTED

The Hawaii Council of Engineering Societies and its member societies are requesting your nominations for several annual engineering awards. Nomination forms for the Engineer of the Year are available at the HSPE website of <http://hawaii-spe.org/>, or at the Hawaii Council of Engineering Societies (HCES) website of <http://hceshawaii.org/>. Or, please contact Kurt Kunimune at kkunimune@bowersandkubota.com for nomination forms, or with questions. Nominations are due by December 29, 2017.

Nomination forms for the Young Engineer of the Year are available through FALEA at their website <http://falea.org/>.

Nomination forms for the Lifetime Achievement Award are available at the HCES website of <http://hceshawaii.org/>. Nominations are due by December 18, 2017.

The Student Engineer of the Year will be selected by the faculty of the University of Hawaii at Manoa College of Engineering.



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www.aacehawaii.com

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Join AACE for the "The Story of Biki - Chapter One" presentation. This technical meeting will be presented by Lori L. McCarney, Bikeshare Hawaii on Friday, December 8, 2017 at 11:30 AM. Cost is \$15 for members and \$20 for non-members. The fee includes a lunch and soft drink. Please RSVP for more information (aace-hawaii@hawaiiengineers.com) by December 4.

Our local Board Meetings are held monthly. Feel free to contact us with suggestions. For more information, please visit our website www.aacehawaii.com.

AACE members and friends had friendly competition knocking pins at our 3rd Annual Bowling + Networking Event on October 19, 2017.



2017-2018 ITE Officers

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cfukuoka@atahawaii.com
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crodriguez@atahawaii.com

The ITE Hawaii Section will be hosting their next meeting on Wednesday, November 29 at the Frank Fasi Municipal Building on the 9th

floor conference room. Guest speaker will be Mohammadreza (Pasha) Hashemi on the "Analysis of Roadway Departure Crashes Contributing Factors Based on Classification and Regression Trees". Please email crodriguez@atahawaii.com if you are interested in participating in this event.

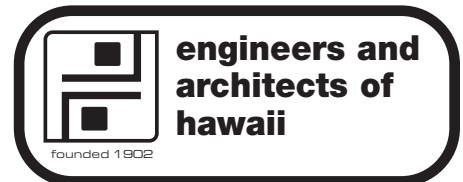


<http://www.hawaiispe.org/>

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Treasurer: Kurt Kunimune, PE
kkunimune@bowersandkubota.com

Nominations are being accepted for Engineer of the Year candidates. Nomination forms are available on the HSPE website. The awardee will be presented at the Engineer's Week Banquet in February of 2018. Please contact Kurt Kunimune at kkunimune@bowersandkubota.com for nomination forms or with any questions. Nominations will be due by December 29, 2017. Mahalo!



PO. Box 1901, Honolulu, HI 96805-1901
An association for Hawaii's Engineers and Architects

WEB address: www.eahawaii.org

EAH 2016- 2017 Officers

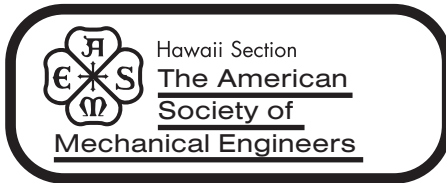
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EAH's new meeting location is Room 301 in the Topa Tower (Ewa tower on Fort Street; Old AMFAC Building). Validated parking is available (enter from Nimitz). The WEB site has been updated to provide directions and a Map. If you have questions please call Sam Gillie (543-4739).

Meetings are held every Friday (except Holidays). Meetings start at NOON and have ended PROMPTLY at 1:00 pm for 70 Years.

Program schedule may be adjusted. Call Sam Gillie to confirm speaker 543-4739; Fax 203-1335.

Lunch is \$10.00 Members, \$12.00 Guests. (All Welcome), Students Free. Drink refreshments are complimentary. You may bring your own lunches, in which case a \$2.00 donation is gratefully appreciated!!



www.asme-hi.com

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NEXT ASME-HAWAII SECTION GENERAL MEMBERSHIP MEETING

Date: To Be Announced
 Time: usually from 5:30 pm to 7:00 pm
 Place: usually at HECO's Ward Ave Cafeteria Conference Room
 Agenda: To be announced.

As usual, all members and guests are invited and encouraged to attend our meetings. There are always lots of complimentary pizza and soft drinks. Please contact Chairman Froilan Garma for directions and for more information, such as parking within Hawaiian Electric's Ward Avenue facilities.

RAINBOW WARRIORS RACING TEAM

Kudos to the UHM Mechanical Engineering Rainbow Warriors Racing team appearing in the November 8, 2017 MIDWEEK. They are preparing for the Summer 2018 Formula SAE competition in Nebraska. This endeavor is part of the Department of Mechanical Engineering Senior Capstone Design program. The team designs, build and race their car in an international competition racing against more than 80 schools around the world.

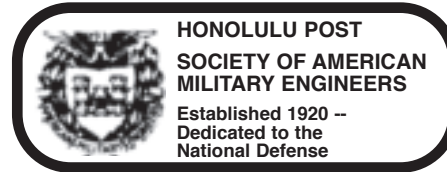
In addition to the design, build and race, the team is responsible for raising funds to cover costs not paid for by the UH. The yearly price tag is around \$50K, which includes parts and other materials, testing facility access, and shipping and travel costs for the competition.

For more information about the team and its efforts, and to contribute to the project, visit Rain Warrior Facebook page @UHMFormula. Rainbow Warriors Racing will be participating

in the annual Francis Rhodes Montgomery Design Competition in May 2018.

TOUR OF HECO'S BATTERY PROJECT

Tour of HECO's Campbell Industrial Park (CIP) Power Station 1 MW battery project was conducted November 4, 2017. The project is in its research phase and is a partnership with the University of Hawaii and other engineering groups. Sam Gillie arranged the tour and stated that a 100 MW battery farm is planned. Eleven attended this tour.



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SAME Honolulu November 8, 2017 Lunch Meeting Presentation

Topic: Third Party Stormwater Construction Inspection Program

Synopsis: A brief overview of why the City and County of Honolulu was required to implement a Third Party Stormwater Inspection program, the importance of stormwater compliance, and the best management practices trends seen in the field.

Presenter: Jennifer Little, Environmental Scientist / Lead Third Party Stormwater Inspector, CH2M - Ms. Little attended Indiana University of Public and Environmental Affairs. She has over 13 years of professional environmental experience with 10 years directly related to construction and NPDES stormwater

compliance inspections. Besides Honolulu, Jennifer has other significant stormwater compliance project experience in San Francisco Bay Area, CA; Jacksonville, FL; Savannah and Atlanta, GA; NASA Ames Research Center, CA; and Fort Stewart and Hunter Army Airfield Army Garrisons, GA.



Website: www.acechawaii.org

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ACECH General Membership Meeting

The speaker at the December general membership meeting will be Jason Nikaido from the City & County of Honolulu, Department of Environmental Services, Collection System Maintenance Division. He will be covering the new wastewater division standards that have just been released. The breakfast meeting will be at the Pacific Club on Thursday, December 7, 7:30 am. Keep an eye out for the invite.

ACECH Annual Engineering Excellence Award Banquet

The ACECH Annual Engineering Excellence Award (EEA) Banquet will be held at the Koolau Ballroom on Saturday, January 27, 2018 at 5:30 pm. Come and celebrate the New Year with your fellow engineers and see who wins this year's top awards. The following projects have been submitted:

- Ala Wai Driving Range Improvements - Bowers + Kubota Consulting, Inc.
- Ala Moana Wastewater Pump Station Force Mains No. 3 & No. 4 - Fukunaga & Associates, Inc.
- Foundation Innovation at Ho'opili Development - Geolabs, Inc.
- International Market Place - Wilson Okamoto Corporation
- Waimea District Park, Phase 1 - Akinaka & Associates, Ltd
- Taxiway Z Structural Improvements, Honolulu International Airport - CH2M
- Wahiawa Police Station NPDES Improvements - The Limtiaco Consulting Group, Inc

If you are interested in attending, please contact EEA Chair Corey Matsuoka at cmatsuoka@ssfm.com.



Tour group for the HECO CIP Power Station 1 MW Battery project on November 4, 2017, outside the battery trailer.

**Deadline for
 Wiliki
 is December 15th**

Be Proactive Not Reactive,
continued on page 1

30¢/kWh = 12¢/day from HECO) + (20kWh/day PV-generation X 3.2¢/kWh=64¢/day from PV) + (8.0kWh/day battery discharge X 10.8¢/kWh = 86.4¢/day from battery) + (16kWh/day Hot thermal storage X 3.4¢/kWh = 54.4¢/day from Hot thermal storage).

Other economic benefits of switching to off-grid operation are:

- 1) When traveling out of town for vacation or business will save ~8kWh/day.
- 2) During the high peak TOU rates from 5PM to 10PM to save about 14-22¢/kWh per night.
- 3) From sunset to sunrise (non-solar PV generation hours) this will enable off-grid operation and therefore 100% Renewable Energy.
- 4) 6+ days a week, 24+ days a month and use grid-tie only to run dryer and stove/oven during peak solar generation times between 10AM to 3PM to achieve 10.5 hours/month grid-tie with <\$20/month HECO bill reducing ROI to <3 years.

In sum, my case study shows that it is possible today to get 100% of all your home energy needs from just the Sun's daytime light & heat with multiple storage and only need to be connected to HECO for <11 hours/month very economically with an ROI of <3 years and daily cost of electricity of \$2.18 at an average electricity cost rate of 4.6¢/kWh. If my home system were duplicated 100,000 times across the state, those homes would remain comfortable during power outages, and the utilities' loads would fall dramatically, bringing us much closer to 100% clean energy by 2045 economically. Hawaii needs to be proactive and not reactive like Puerto Rico, there will be an island wide power outage again in the future due to Mother Nature (lighting storm, earthquake or hurricane!)

View TechTalkHawaii interview between Howard Wiig and John Borland Oct 30, 2017, <https://www.youtube.com/watch?v=DxukCZxg1nM&feature=youtu.be>. Join us for the IEEE Power and Energy Society Hawaii chapter Wednesday Dec 13th seminar & panel discussion from 6:30PM to 8PM at UH/Manoa iLab building #37 on Controllable CGS, Smart Export or Off-Grid, which is best for isolated island residences like Hawaii for cost savings, next island blackout and achieving state goal of 100% renewables by 2045. Open to the public free of cost just RSVP JohnOBorland@aol.com for pizza head count.

John O. Borland received his BS and MS degrees from the Massachusetts Institute of Technology. He has published over 140 technical and invited papers in the areas of advanced semiconductor device manufacturing techniques and high efficiency c-Si solar cells and has been awarded 6 patents. He is President of J.O.B. Technologies, a strategic technical marketing consulting company providing services to both the semiconductor industry in the area of advanced front end of line process technology with the current focus on 7 nm and 5 nm technology for next generation smartphones, and the solar industry for high efficiency solar cells and cost savings for residential rooftop solar systems. He is a senior member of IEEE and the Hawaii Section chair and Power and Energy Society chapter chair.

Editors Note: This article is in response to "Hawaii State Energy Office Committed to 100% Clean Electrical Energy by 2045" printed in the October 2017 Wiliki O Hawaii.

ROI Analysis For System Costs =\$29,500

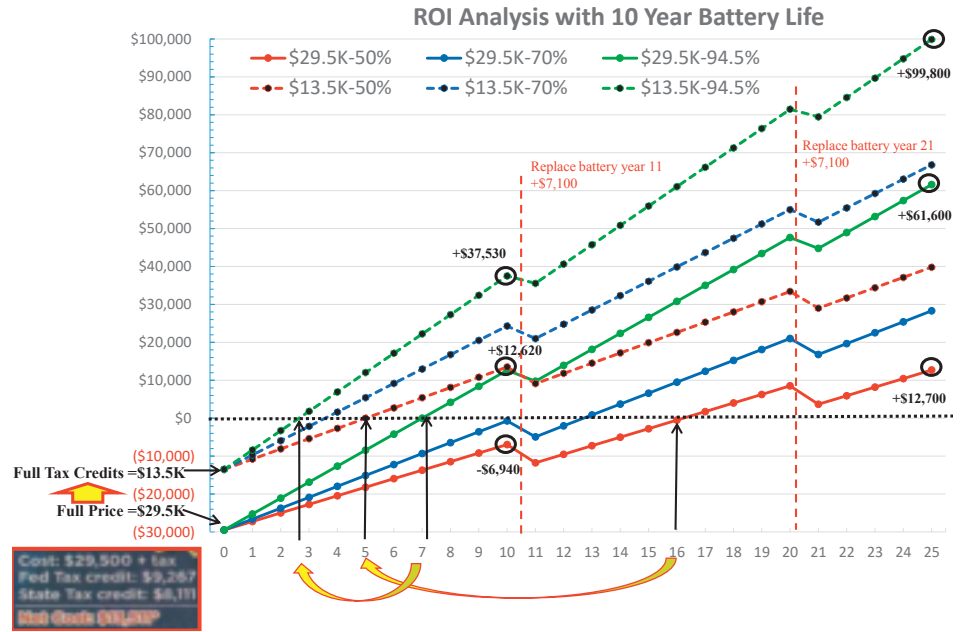


Fig.1: ROI based on full price compared to full tax credit/rebate price.

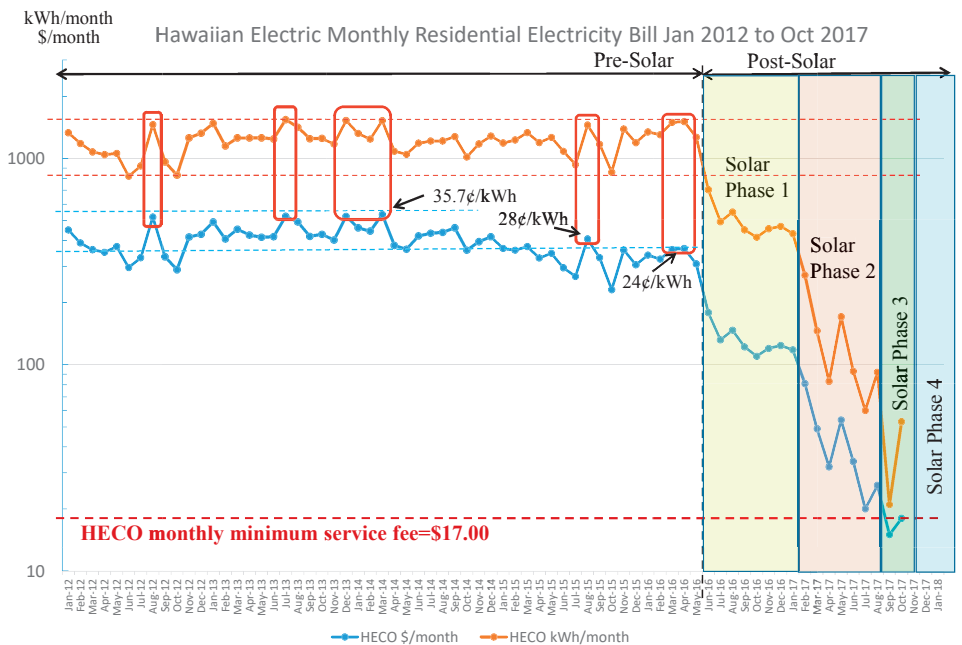
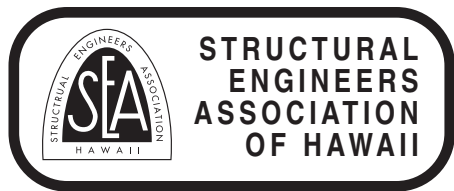


Fig.2: HECO monthly grid-buy bill from Jan 2012 to Sept 2017.



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PREVIOUS BOD MEETING

November 1, 2017

General Membership Meetings/Technical Seminars/Events

For all events see seaoh.org or look for email flyer for registration.

SEAOH Scholarships

SEAOH would like to congratulate the 2017

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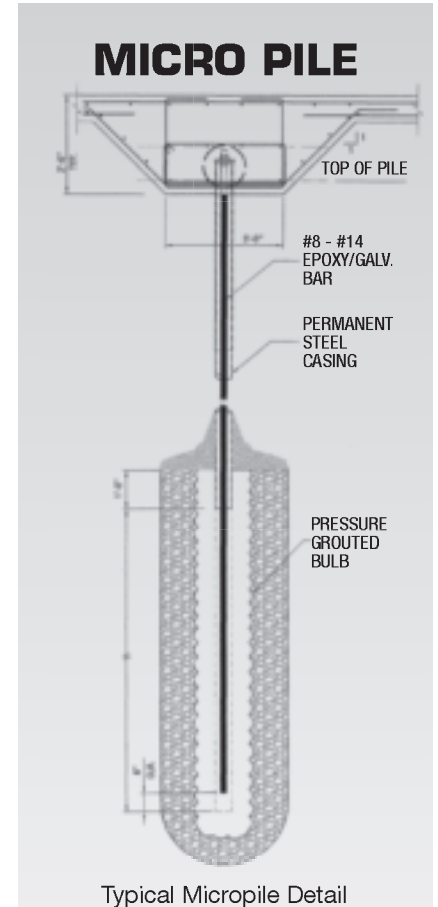
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Scholarship Awards

The Chapter offers partial scholarships towards higher education tuition to eligible students who major in a public works-related field. As such, the Chapter has awarded \$1000 scholarships each to Daniela Rivera (University of Hawaii at Manoa) and Kelli Oyasato (University of Hawaii at Manoa).

Awards Reception / Meet & Greet – November 2

On November 2 at The Mandalay Restaurant, the Chapter recognized this year's awards recipients for public works projects. The following projects were recognized: Ala Wai Driving Range Improvements, City and County of Honolulu (CCHNL) Department of Facility Maintenance, Environment category (under \$5 million); Sand Island Wastewater Treatment Solids Handling Project, CCHNL Department of Design and Construction,



Chapter President Ryan Char with Manuel Lanuevo, recognized as a Top Ten Public Works Leader.



Chapter President Ryan Char with representatives from Bowers + Kubota for the Ala Wai Driving Range Improvements Project and the Sand Island Wastewater Treatment Solids Handling Project. Left to right: Eric Iwamoto, Tiffany Tabbal, Ryan Char, Nhut Pham and Peter Agustin.

Environment category (\$25-75 million); Inter-Island Cargo Terminal Facility at Hilo Harbor, State Department of Transportation (SDOT) Harbors Division, Transportation category (\$5-25 million); Honolulu International Airport Taxiway Z Reconstruction, SDOT Airports Division, Transportation category (\$25-75 million); and the H-1 PM Contraflow Lane Project, SDOT Highways Division, Transportation category (greater than \$75 million). Manuel Lanuevo, Division Chief of the CCHNL Department of Environmental Services Refuse Division was also recognized as a Top Ten Public Works Leader. Attendees also were able to network with fellow members and invited guests from various State and City agencies and the private sector.

Community Service

The Chapter participates in the City's Malama O Ka 'Aina program, a partnership between the City & County of Honolulu and its citizens to care for and help keep our island community a quality place to live. A future community service event will be forthcoming and the Chapter is seeking volunteers to provide much needed support in this partnership. Please check hawaii.apwa.net for additional information on this and other upcoming events.



2017-2018 YMF Officers

Jordan Urabe, President
jurabe@ascehawaiiymf.org
Nicole Nakaoka, Vice President
nnakaoka@ascehawaiiymf.org
Austin Wong, Treasurer
awong@ascehawaiiymf.org
Kapiolani Street, Secretary
kstreet@ascehawaiiymf.org
Norman Leong, Past President
nleong@ascehawaiiymf.org

YMF General Meeting

The next YMF general meeting is scheduled for Wednesday, December 13, 2017 at 6:00 pm at TJ's Sports Bar & Grill. If you are interested in attending and learning more about the various professional, social and service opportunities available through YMF, please contact YMF at ymf.hawaii@gmail.com.

Girl Scouts of Hawaii STEM Fest

On Saturday, November 4th, nine volunteers from ASCE YMF hosted activities alongside over 100 other volunteers at the Girl Scouts of Hawaii STEM Fest 2017. The event was attended by over 300 girl scouts, ranging in grade level from Kindergarten to 12th grade. The ASCE YMF volunteers ran three activities. For the first activity, the girls were challenged to construct a boat out of foil that could hold as many pennies as possible without sinking. At the second activity, the girls built pom-pom catapults and had a lot of fun launching the pom-poms at targets. For the third activity, the girls had to design and construct a free-standing structure that was at least one spaghetti tall using a bag of mystery items. Thank you to our volunteers for giving their time and energy to help make this event a success and inspire young girls to pursue interests in STEM fields!

Special Olympics 2017 Holiday Classic Bowling Competition

On Saturday, November 11th, three YMF members volunteered at the Special Olympics

2017 Holiday Classic Bowling Competition at the Joint Base Pearl Harbor-Hickam Bowling Center. Each volunteer was assigned to manage a bowling lane with three to five athletes per lane and oversee three games in the morning competition and three in the afternoon. The volunteers assured that the games ran smoothly, cheered on the athletes, tallied up their scores, and led them to the awards ceremony. A big mahalo to the YMF members for working hard to make a memorable experience for the athletes, coaches, and sponsors! Your help was greatly appreciated!



ASCE YMF Job Shadow Program

Most students will often go through school having little to no knowledge of what the work environment will be like once they graduate college and enter the workforce. The ASCE Hawaii Section YMF Job Shadow Program offers students the opportunity to spend a few hours with working professionals to gain a better understanding and valuable insight into the civil engineering work environment. Students will follow and observe professionals at work while learning about the various aspects of civil engineering. While hosting students, professionals will be able to share the various responsibilities, duties, and experiences within civil engineering. For more information regarding the ASCE Hawaii Section YMF Job Shadow Program and/or if your company is interested in hosting students in the program, contact Brandon Uejo at buejo@ascehawaiiymf.org.



2017-2018 ASCE Hawaii Section Officers

President: Lara Karamatsu, P.E.
email: lkaramatsu@ascehawaii.org
President-Elect: Eric Arakawa, P.E.
email: earakawa@ascehawaii.org
Vice President: Jason Kage, P.E.
email: jkage@ascehawaii.org
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email: dnemoto@ascehawaii.org
Secretary: Clifford Lum, P.E.
email: clum@ascehawaii.org
Past President: Timothy Goshi, P.E.
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YMF President: Jordan Urabe, E.I.T.
email: jurabe@ascehawaiiymf.org

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CCMAA Hawaii Chapter
<http://hawchapter.cmaa.org>

2018 CMAA Hawaii Chapter Board

President Brook Corney (CH2M)
 Vice President Alex Pascual (Bow CM)
 Secretary Ranelle Ho (SSFM)
 Treasurer Emily Boirum (Bowers + Kubota)
 Chap Past Pres Chandra Namumart (EKNA Services)

CMAA Hawaii Chapter News:

Aloha CMAA Hawaii! December is here, and it is another big month for CMAA Hawaii! In October, your CMAA Hawaii Chapter had one of our own win the **Distinguished Service Award** at the CMAA National Conference and Trade show, Mr. Tim Bramsen (Bowers + Kubota)! Also in October, we had our **6th Annual CMAA Hawaii Chapter Scholarship Fundraiser Golf Tournament**. Mahalo to all our generous sponsors for your contributions and participation in making this event an overwhelming success!

In November, our new board hit the ground running- President Brook Corney (CH2M), Vice President Alex Pascual (Bow CM), Secretary Ranelle Ho (SSFM), and Treasurer Emily Boirum (Bowers + Kubota) have all been working hard and planning to bring you even more amazing events for 2018. Please let any of our board know what you would like to see it 2018 at any one of our events. In December, we will have a Community Service Project and a luncheon so look out for our email blast coming soon! We would love for you to be a part of the excitement that is CMAA Hawaii. Our chapter is here as a resource for **all** Construction Engineering and Management professionals, and the things that we do benefit not only our CM community but our larger Ohana as well.

If you have any questions regarding any of our upcoming events, would like to join our Ohana and become more involved with the CMAA Hawaii Chapter or would simply like to be added to our email list, please email us at hawaii.cmaa@gmail.com, or at our mailing address: CMAA Hawaii, PO Box 531, Honolulu, HI 96809

Looking for a CCM? The current listing for all Hawaii CCMs can be found here: <https://cmaanet.org/certified-construction-managers-registry>.

SEAOH, from page 4

SEAOH Scholarship recipients. Leah Miyasato and Ian Jehn were awarded \$3000 each. Chase Suehiro and Alexander Usami were awarded \$1500 each. Scholarship winners were announced at the annual SEAOH golf tournament awards banquet which was held on October 13, 2017. Thank you to the golf tournament committee and all participants, sponsors and other donors, and volunteers for making the scholarships possible.

New Member Applications

An application for the following individual



HAWAII CHAPTER OFFICERS

President: Robert Bigtas
 S.S. Dannaway Associates
 rbigtas@ssdafire.com
 Vice President: Derick Kam
 Fire Protection
 Secretary: Ferdi Guinto
 Lohaus and Associates
 Treasurer: Sam Dannaway
 Coffman Engineers
 Director: Mel Harano
 Thermal Engineering Corporation
 Director: Bob Lohaus
 Lohaus and Associates

has been received and is open for comments from the membership: Angela Nepa for Affiliate Member.

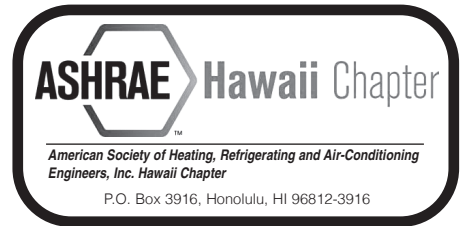
2018 SEAOH Board Election Results

The following individuals have been elected to the 2018 SEAOH Board: Vice President- Kevin Nakamoto, SSFM; Treasurer- Eric Tomishima, Iwamoto & Assoc.; Secretary- Craig Meierhoffer, Baldrige and Associates; Directors- Jillian Sumitomo, MKE Associates and Kainoa Aki, BASF.

SEAOH Installation Banquet

January 2018, details to be announced.

Next Meeting on December 6, 2017. For information, contact SEAOH President; Jonathan Murai jmurai@kaihawaii.com.



Hawaii Section Officers 2017-2018

President Kevin Luoma, PE
 Pres-Elect Mofazzal Mir, PE
 Vice Pres Willie Diguc, PE
 Secretary Samantha Nakamura, PE
 Treasurer Matthew Tio

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The price for the ads will be based on a 1 1/4" x 2 5/16" module size which is 1/24th of the page, and be \$20.00 per month with a 15% DISCOUNT for a 6-MONTH RUN.

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