Hawaii Green Infrastructure Authority

Making green energy accessible and affordable for Hawaii's ratepayers.

2019

Annual Report to the Governor and Legislature

Department of Business, Economic Development and Tourism

Pursuant to Act 211, Session Laws of Hawaii 2013

Table of Contents

I. Message from the Chair

DAVID Y. IGE
GOVERNOR

MIKE MCCARTNEY
DIRECTOR

DEPARTMENT OF BUSINESS,
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December 20, 2019

Aloha kākou,

2019 was an exciting year with the Hawaii Green Infrastructure Authority ("HGIA") achieving a number of milestones, including the following:

- Exceeded $90.0 million in loan commitments, facilitating over $120.0 million in clean energy projects;
- Launched its Green Energy Money $aver On-Bill Program;
- Posted excess revenues over expenses, exceeding all prior years' deficits; and
- Celebrated its 5th year in operation.

These achievements were made possible with the support of the Hawaii Public Utilities Commission, GEMS-Approved Contractors, energy stakeholders, the local banking industry and the Hawaiian Electric Companies.

As envisioned by Act 211, (SLH 2013), HGIA is achieving its mission to make green energy accessible and affordable for Hawaii's most vulnerable ratepayers.

Mahalo nui,

Mike McCartney
HGIA Board Chair

II. Dashboard

GEMS Impacts at a Glance
(As of September 30, 2019)

Cumulative Excess Revenues Over Expenses*: $3.2 Million

Jobs Created or Retained: 997.0

Hawaii Tax Revenue Generated: $12.1 million

Estimated kWh Produced/Reduced: 768,533,275**

Estimated Barrels of Petroleum Displaced: 472,014**

Estimated Metric Tons Greenhouse Gas Avoided: 231,217**

* Excess Revenues over Expenses is before some $2.4 million in "expenditures" for loan repayments transferred to the Public Utilities Commission.

** Over lifetime of equipment financed.

III. Executive Summary

Purpose. The Hawaii Green Infrastructure Authority ("HGIA" or "Authority") was created by the Legislature to make clean energy investments accessible and affordable for Hawaii's consumers. HGIA was capitalized with the proceeds from the Green Energy Market Securitization ("GEMS") Bond, an innovative market-driven financing mechanism, to advance the State's Energy Efficiency Portfolio Standards ("EEPS") and support efforts to achieve its 100% renewable portfolio standard ("RPS") goal in the electricity sector by 2045.

Progress. Over the past year, the Authority continued to approve, commit and deploy capital under its existing loan products. Additionally, on April 8, 2019, Governor Ige announced the official launch of the Green Energy Money $aver ("GEM$") On-Bill Program.

Murray Clay, Ulupono Initiative President; James "Jay" Griffin, PUC Chair; Governor David Ige; Gwen Yamamoto Lau, HGIA Executive Director; and Scott Seu, HECO Senior Vice President

Hawaii's on-bill program has created a buzz nationally and the Authority continues to be invited to participate in forums and webinars to share GEM$ with other states and municipalities.

> "***While Hawaii is joining 35 states in offering an on-bill financing option, Hawaii's GEM$ program can be a great model for on-bill nationwide with its innovative and inclusive design elements, coupled with the fact that it is administered by Hawaii's Green Bank."***
>
> **Miguel Yanez, Environmental & Energy Study Institute**
> **Washington D.C., March 2019**

Financial Viability. As of September 30, 2019, the Authority has committed over $90.0 million in GEMS capital, leaving only approximately $6.3 million remaining to lend to State Agencies and $31.7 million remaining to lend to the state's most vulnerable ratepayers. Additionally, the Authority's financial statements confirms our ability to independently support operations without additional administrative resources from taxpayers.

Opportunities. In order to achieve the State's goals of energy self-sufficiency, energy security and energy diversification, the investment in clean energy technology and infrastructure is estimated to cumulatively total $12.8 billion.

Due to the significant amount of capital required, it is critical for public finance authorities to leverage private investment with the objective of accelerating clean energy market growth, making energy cheaper and cleaner for ratepayers, driving job creation and preserving taxpayer dollars. Instead of relying on subsidies, deploying low-cost capital

efficiently through financing and lowering the cost of clean energy will spark consumer demand to bring markets to scale. The public sector's goal should be to seek new methods of using public funds in a sustainable manner, such as financing programs, with an exponential potential for greater impacts by recycling, reinvesting and relending that same public dollar.

To meet the projected need, the Authority will be actively seeking opportunities to attract outside capital to be blended and leveraged with GEMS funds to stretch the amount we have left to lend. Attracting outside capital, which will not be inter-mingled with GEMS bond proceeds, will require the establishment of a new fund, tentatively named the Clean Energy and Energy Efficiency Revolving Loan Fund ("Fund"). This new Fund will enable the Authority to continue its lending programs and further diversify its loan products to meet the needs of our underserved ratepayers.

IV. Act 211, Session Laws of Hawaii 2013

Reporting Requirements. This document fulfills the statutory requirement to report on the status of the Authority's activities, including approved loan program description and uses; information and data on the implementation of the loan program; and analytical data relating to the deployment of clean energy technology. The Authority respectfully submits this status report outlining the steps that were taken to further design, develop and deploy GEMS capital in 2019 as well as plans for 2020.

Legislative Authorization. On April 30, 2013, the Legislature enacted, and on June 27, 2013, the Governor signed into law, Act 211, authorizing the establishment of a green infrastructure financing program, known as GEMS to finance clean energy infrastructure to contribute towards Hawaii's aggressive pursuit of its statutory 100% clean energy goals by 2045 while helping ratepayers lower their energy costs.

Act 211 established a legal structure that enabled DBEDT to issue bonds to capitalize the green infrastructure loan fund, leveraging public and private capital, to facilitate the achievement of the State of Hawaii's aggressive clean energy goals while providing opportunities for underserved ratepayers to invest in and save money from green infrastructure investments.

Key objectives of the GEMS program are to:

1. Address financing market barriers to increase the installation of clean energy projects and infrastructure to meet the State's clean energy goals, including the RPS and EEPS;
2. Democratize clean energy by expanding access and affordability of renewable energy and energy efficiency projects for identified underserved markets, while expanding the market generally;
3. Enable more ratepayers to reduce their energy use and energy costs by helping them finance clean energy improvements;
4. Partner with and support existing market entities in the clean energy and financing sector to ensure GEMS can bridge market gaps and facilitate a sustainable and efficient private sector market; and
5. Balance the aforementioned goals and objectives with repayment risk to achieve an appropriate rate of return and build a sustainable financing program.

Hawaii Public Utilities Commission ("PUC" or "Commission") Approval and Orders. To effectuate Act 211, GEMS required Commission approval of its Financing Order and Program Order Applications. The PUC approved the GEMS [Bond] Financing Order on September 4, 2014 and the GEMS [Loan] Program Order on September 30, 2014.

The regulatory Orders approved by the Commission established the general parameters and program processes for GEMS. With feedback and support from several interveners - including but not limited to the Consumer Advocate and the Hawaii Solar Energy Association, the PUC granted GEMS the flexibility to work with the market to provide financing programs to enable more of Hawaii's consumers to invest in and benefit from clean energy.

Pursuant to HRS 269-162, the Financing Order provided regulatory approval for the issuance of low-cost Green Infrastructure Bonds (GEMS Bonds) to capitalize the GEMS Loan Fund. Pursuant to HRS 269-170, the Program Order provided approval for the deployment of funds from the issuance of the GEMS Bonds. Included in the Program Order were general program parameters and specific deployment strategies, outlining a clean energy financing program that was best thought to serve Hawaii's consumers at that time.

V. Hawaii Green Infrastructure Authority

To oversee the GEMS program, the Hawaii Green Infrastructure Authority was constituted on October 23, 2014. HGIA is overseen by a five-person board of directors and is administratively attached to DBEDT. The Authority is tasked with administering and governing the GEMS Program, ensuring that capital is deployed effectively to achieve program objectives.

When it was originally constituted, the Authority envisioned a small staff of five (5) to be primarily responsible for overseeing third-party vendors and consultants, with all major functions, such as marketing; contractor outreach, education and training; loan origination, loan underwriting, loan funding and loan servicing, to be outsourced. $100.0 million in loan acquisition, underwriting and processing was delegated to Clean Power Finance in San Francisco for commercial/non-profit PV projects and $50.0 million in loan acquisition, underwriting and processing was delegated to WECC/EFS in Wisconsin for residential PV installations.

However, due to, amongst other things, the challenges of originating and underwriting loans from the mainland, the program floundered during its first two years of operations, requiring HGIA's business model to evolve. A significant change in this business model was a deliberate decision to terminate all out-sourced functions, except for loan servicing. Bringing all of these duties and responsibilities in-house provides for increased focus, faster application processing and improved results. This shift has enabled the Authority to significantly increase its loan activity with the responsibilities of business development, contractor outreach, loan origination, underwriting, documenting, funding and even collections, being done in-house without an increase in HGIA staffing.

While achieving the intended results of addressing financing gaps in the market, especially for the underserved, and significantly increasing loan deployment, the substantial workload previously done by third-party vendors, has shifted to the HGIA staff. To support increased lending operations, all existing job descriptions, except for the Administrative Services Coordinator position, have been converted to process, underwrite and service loans. While

the Authority is mindful of being prudent stewards of the GEMS special fund, the additional workload is resulting in team members being required to work consistently well beyond the normal work week, which is not a sustainable model, especially as the Authority continues to introduce new loan products and programs to meet market demand, which requires more staff time to effectively launch and implement.

Traditional financial institutions regularly conduct internal reviews of their operations to ensure adequate policies, procedures, controls and sound management practices are in place to remain in compliance with Federal and State regulations and mitigate excessive risks and loss.

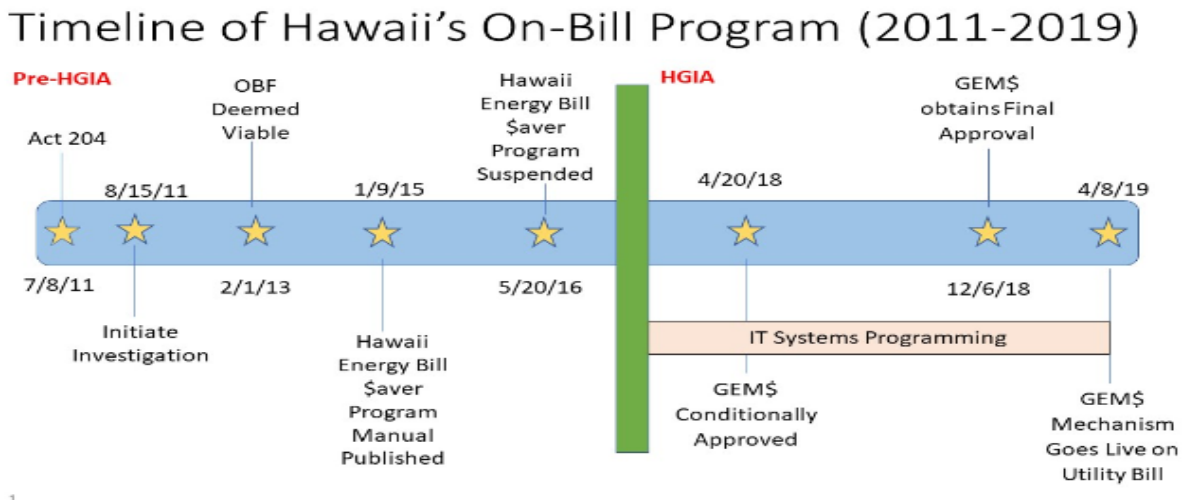
Similarly, with a culture of "*kaizen*" or continuous improvement, HGIA would like to proactively conduct an "internal review" of its operations utilizing the services of sister agency, the Division of Financial Institutions ("DFI"). Over the past three years, HGIA's loan portfolio has grown from $1.1 million at fiscal year ended 6/30/16 to $90.0 million at fiscal year ended 9/30/19. With this tremendous growth (over 8000%) in committed loans, in a relatively short period of time, an important goal for HGIA during this fiscal year is to have a third-party review of its loan operations and seek increased efficiencies by implementing lending and organizational best practices.

HGIA is committed to the accountable use of funds through various reporting mechanisms, including Legislative Reports, quarterly and annual reports to the PUC, and annual audits.

VI. 2019 GEMS Program Activities

Lending Activities. Lending activity markedly increased, up over 311%, due to the launch of the GEM$ On-Bill Program, a significant accomplishment which implemented the 2011 vision of the Hawaii State Legislature.

The journey of Hawaii's on-bill financing program began with Act 204, which was signed into law on July 8, 2011 and culminated after almost eight years of work invested by the Hawaii Public Utilities, the Hawaiian Electric Companies and energy stakeholders.

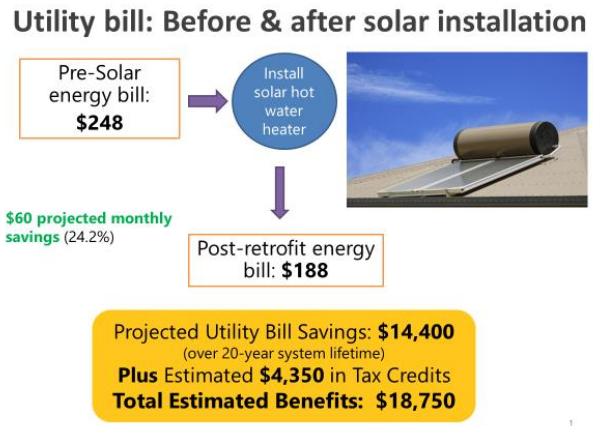


While the PUC, utility and energy stakeholders were hard at work on Hawaii's on-bill program since August 2011, as reflected in the timeline above, HGIA was not actively involved with the development of this program until after 2016, when the PUC suspended the Hawaii Energy Bill $aver Program and directed the utility to work with HGIA to design and implement an on-bill repayment mechanism for its exclusive use.

Some of the unique features of GEM$, which enables the program to qualify low and moderate-income homeowners, renters, nonprofits and small businesses, includes:

- Non-traditional underwriting, which means no credit reports and no debt-to-income calculations;
- Funds paid to install the energy improvement are tied to the utility meter (not a person), which allows the obligations to transfer from ratepayer to ratepayer, a critical component for rental properties; and
- Below market interest rates and longer terms to enable more ratepayers to enjoy immediate bill payment benefits as well as environmental benefits.

The following is an example of the benefits enjoyed by a family of four on Hawaii Island:



"Accessibility and affordability are other challenges to tackle getting to 100%. Becoming a prosumer and having agency over energy choices is very hard for renters and single-family homeowners. Programs like the Green Energy Money $aver Program, known as GEM$, are working to mitigate that barrier for consumers."

Will Giese, Executive Director, HSEA
Hawaii's Charge to Reach 100% Renewable
Pacific Business News, September 13, 2019

With 43% of Hawaii's households renting and almost half of Hawaii's households classified as ALICE (Asset Limited Income Constrained, Employed), or below, the Authority realized that it was important to Hawaii's policy makers and regulators that Hawaii's on-bill program be designed for low and moderate-income households, renters, non-profits and other hard-to-reach segments.

Accordingly, as GEMS funds available to lend continue to decrease, the Authority felt it important to pause from its "first come, first served" mindset to deploy funds to eligible borrowers as quickly as possible, and to determine if certain underserved and hard-to-reach segments should be provided more time to adopt clean energy. To accomplish this, HGIA's Board of Directors approved the establishment of a Permitted Interaction Group ("PIG") on June 14, 2019 to investigate and make a recommendation regarding the allocation of the remaining GEMS loan funds. On July 29, 2019, the PIG presented its findings and on August 15, 2019, HGIA's Board of Directors approved changes to the GEMS Program, effective September 1, 2019.

The Authority's decision was based on (1) guidance provided by the PUC emphasizing the importance of equitable access to GEMS funds for Hawaiian Electric Companies' customers on all islands and the allocation of funds to underserved customers; (2) the recommendations of the Permitted Interaction Group, and (3) the testimonies presented to HGIA.

While small businesses are not classified as "underserved" in the PUC's Decision and Order 32318, small businesses are considered the backbone of Hawaii's economy. In fact, about 98 percent of all Hawaii businesses are small businesses, and many of them are challenged by access to loan capital at reasonable costs. Further, in the PUC's 2019 Legislative Report, small businesses were considered alongside low-income ratepayers and renters as "hard-to-reach" customers".

"I think without the GEMS program, I don't know that it would have been as easy for the bank to yes. So we're very grateful to the State that they have that program…"

Garrett Marrero, Maui Brewing
Pacific Business News, January 10, 2019

Recognizing that while there is a tension and need for timely clean energy adoption in general, the Board agreed with the Permitted Interaction Group ("PIG") that while it will slow the pace of loan deployment, the real opportunity and objective of the GEMS program should be to provide access to capital for clean energy adoption to the underserved and hard-to-reach.

To effectively manage the use of the remaining GEMS funds and to ensure HGIA achieves its key program objective of democratizing clean energy for Hawaii's low and moderate-income families, renters, and other hard-to-reach segments, effective September 1, 2019, HGIA has set fund allocations for specific segments and will only lend to the following:

Segment	% Allocation
Low and Moderate-Income (as defined by the U.S. Housing and Urban Development) Single-Family residential homeowners and renters	20%
Small Businesses (as defined by the U.S. Small Business Administration)	15%
Multi-Family Rental Projects	35%
Nonprofits	30%

HGIA sets new program allocations in effort to make green energy 'more affordable'

Sep 9, 2019, 2:48pm HST Pacific Business News

The Hawaii Green Infrastructure Authority's new fund allocations for its programs, which were established in an effort to reach different market segments of utility ratepayers, went into effect Sept. 1.

"When it comes to supporting solar loans for low income households, Hawaii's GEMS program is an excellent model."

What Should A Great Low-Income Solar Program Look Like?
SolarPowerRocks.com, September 20, 2019

VII. Impacts (As of September 30, 2019)

The following are program metrics for the year-to-date fiscal 2020 and since program inception.

Energy and Environmental Impact Clean Energy Production of Projects Financed	3 Mos. 7/1 to 9/30/19	Since Program Inception
Installed Capacity (Actual kW)	620	8,622
Total Yr 1 Production (Estimated kWh)	1,015,641	12,887,895
Total Project Production over Lifetime of Installed PV (Projected kWh, including 0.05% degradation)	19,888,102	238,578,804
Electricity Reductions from Energy Efficiency Projects Financed		
Total Yr 1 kWh Reduction (Energy Efficiency)	3,135	35,326,942
Total kWh Reduction Over Lifetime of Installed EE	58,809	529,954,471
Petroleum Displaced by Clean Energy and Energy Efficiency Projects (1)		
Total Petroleum Displaced/Saved over Lifetime (Estimated barrels)	12,251	472,014
Petroleum Displaced based on Yr 1 Clean Energy Generation (Estimated barrels)	624	7,915
Petroleum Displaced Over Lifetime of Installed PV (Estimated barrels)	12,215	146,416
Cumulative Annual Petroleum Saved from Yr 1 Efficiency Projects	1.9	21,697
Petroleum Saved of Lifetime of Efficiency Projects	36	325,485

(1) Reference unitjuggler.com for conversion metrics

Greenhouse Gas Avoided (2)		
Total Greenhouse Gas Avoided Over Lifetime (Clean Energy and Energy Efficiency Projects) (Est. metric tons CO_2)	6,003	231,217
Greenhouse Gas Avoided from Clean Energy Yr 1 Production (Est. metric tons CO_2)	306	3,878
Greenhouse Gas Avoided Over Lifetime of Installed PV (Projected metric tons CO_2)	5,985	71,740
Greenhouse Gas Avoided from Yr 1 Energy Efficiency	1	10,631
Greenhouse Gas Avoided over lifetime of Energy Efficiency Project	18	159,478

(2) Reference eia.gov for conversion metrics

Economic Development Impact	3 Mos. 7/1 to 9/30/19	Since Program Inception
GEMS Revenues (Cash Basis)	$ 917,456	$ 8,667,231
GEMS Administrative & Program Costs (Cash Basis) (1)	$ 265,889	$ 4,731,388
GEMS Loans Funded	$ 14,154,190	$ 55,201,422
Indirect Economic Impact - Jobs Created/Retained (2)	28.0	997.0
State of Hawaii Tax Revenues Generated (3)	$ 358,460	$ 12,097,296

(1) Does not include principal and interest repaid to the PUC.
(2) Jobs created or retained is calculated using the State's metrics of $88,165.25/job for 2015; $91,345.19/job for 2016; $94,633.63/job for 2017; $98,034.06/job for 2018; and $101,550.09/job for 2019.
(3) State taxes generated is calculated as $0.126 per dollar of investment.

Market Expansion Impact

Projects Financed According to Technology Type/Category

Solar Photovoltaic	19	579
Energy Storage (1)	2	64
Lighting Upgrades (2)	0	965,000
HVAC Upgrades*	0	324
Mechanical Upgrades	0	0
Controls and Monitoring Devices	517	1,358
Energy/Water Nexus (3)	1	86
Total No. of Projects	539	967,411

(1) HGIA has financed PV + Storage projects for both the residential and commercial portfolio, however, the Energy Storage Systems are not being financed with GEMS funds.
(2) DOE Project: Interior and Exterior LEDs.
(3) Includes solar water heating.

Residential Loan Program	**3 Mos. 7/1 to 9/30/19**	**Since Program Inception**
Total Number of PV Loans, Direct	3	190
Total Number of PV Leases, Direct	0	64
Total Number of GEM$ OBOs for PV (Loans)	9	15
Owner Occupied OBOs	9	15
Renter OBOs	0	0
Total Number of GEM$ OBOs for PV (Leases)	0	10
Total Number of GEM$ OBOs for EE (SWH)	1	5
Owner Occupied OBOs	1	5
Renter OBOs	0	0
Total Number of GEM$ OBOs	10	30
Number PV Loans/Leases/OBOs Serving Underserved Market (1)	8	217
Number EE Loans/Leases/OBOs Serving Underserved Market (1)	1	5
% Loans/Leases Serving Underserved Market	69%	78%

1) See AMI Distribution

Status of Applications (WECC):	**3 Mos. 7/1 to 9/30/19**	**Since Program Inception**
No. of Residential PV Applications Received	0	427
No. of Residential PV Applications in Process	N/A	N/A
No. of Residential PV Applications Declined	0	160
No. of Residential PV Applications Withdrawn/Expired	0	127
No. of Residential PV Applications Loan Docs Accepted	N/A	N/A

Status of Applications (Direct):

No. of Residential PV Applications Received	4	130
No. of Residential PV Applications in Process	N/A	N/A
No. of Residential PV Applications Declined	0	54
No. of Residential PV Applications Withdrawn/Expired	1	29
No. of Residential PV Applications Loan Docs Accepted	N/A	N/A

Status of Applications (Leases - all Leases):

No. of Residential PV Applications Received	15	164
No. of Residential PV Applications in Process	N/A	N/A
No. of Residential PV Applications Declined	1	2
No. of Residential PV Applications Withdrawn/Expired	23	45
No. of Residential PV Applications Notice to Proceed	N/A	N/A

Status of Applications (GEM$ OBR-PV and EE):

No. of Residential GEM$ Applications Received	180	481
No. of Residential GEM$ Applications in Process	N/A	N/A
No. of Residential GEM$ Applications Declined	50	129
No. of Residential GEM$ Applications Withdrawn/Expired	29	93
No. of Residential GEM$ Applications OBO Accepted	N/A	N/A

Geographic Location of Financing Products

Oahu	8	255
Maui	3	15
Molokai	0	2
Lanai	0	0
Hawaii	2	12

Profile of Customers Financed:

Number of Customers by Customer FICO Credit Score (2)

700 and above	1	144
675-699	2	49
650-674	0	29
620-649	0	18
600-619	0	9
Below 600	0	2

(2) Excludes on-bill applicants

Number of Customers by Income Distribution (self-reported)

Under $15,000	0	1
$15,000-$24,999	0	1
$25,000-$34,999	0	4
$35,000-$49,999	1	18
$50,000-$74,999	1	35
$75,000-$99,999	3	63
$100,000 and above	8	162

Number of Customers by Area Median Income (1)

<30% AMI (Extremely Low Income)	0	5
30% to <50% AMI (Very Low Income)	2	31
50% to <80% AMI (Low Income)	2	52
80% to <140% AMI (Moderate Income)	5	134
>140% AMI	4	62

(1) Area Median Income as provided by the U.S. Department of Housing and Urban Development (HUD).

Commercial Loan Program	3 Mos. 7/1 to 9/30/19	Since Program Inception
Total Number of GEMS PV Loans	3	24
Total Number of GEMS EE Loans	1	2
Total Number of GEM$ OBOs, PV	2	5
Owner-User	2	2
Commercial Tenant	0	0
Total Number of GEM$ OBOs, EE	0	0
Owner-User	0	0
Commercial Tenant	0	0
Number of Nonprofits Participating in GEMS	4	17
Number of Small Businesses Participating in GEMS	1	6
Number of Rental Units Supported by GEMS	0	876

Geographic Location of Loans (1)

Oahu	4	18
Maui	0	5
Molokai	1	1
Lanai	0	0
Hawaii	0	5

Number of Small Businesses by Gross Receipts*

Up to $9,999	0	0
$10,000-$24,999	0	0
$25,000-$99,999	0	0
$100,000-$499,999	0	1
$500,000-$999,999	0	1
$1,000,000-$4,999,999	1	2
Above $5,000,000	0	0

Number of Small Businesses by Average Number of Employees*

10 Employees or less	0	0
11-50 Employees	0	0
51-100 Employees	0	0
101-250 Employees	0	0
251-500 Employees	0	0
501-1,000 Employees	0	2
>1,000 Employees	0	0

* Depending on the North American Industry Classification System (NAICS), the size determination is based on gross revenues or number of employees.

Cost Savings Impact	3 Mos. 7/1 to 9/30/19	Since Program Inception
Aggregate, Estimated, Gross* Electricity Cost Savings ($)		
from Energy Production and Reduction	$ 8,685,514	$269,839,624
from Energy Production (Consumer)	$ 1,507,002	$ 35,667,751
from Energy Production (Commercial)	$ 7,154,932	$ 75,163,610
from Energy Efficiency (Consumer)	$ 23,580	$ 93,673
from Energy Efficiency (Commercial)	$ -	$158,914,590

Average, Estimated, Gross* Electricity Cost Savings ($)

from Energy Production (Consumer)	$ 125,584	$ 116,596
from Energy Production (Commercial)	$ 1,430,986	$ 2,591,849
from Energy Efficiency (Consumer)	$ 23,580	$ 18,735
from Energy Efficiency (Commercial)	$ -	$ 79,457,295

* Gross savings calculation for the life of the system assumes a historical compounded growth rate increase depending on the rate schedule and island.

Aggregate, Estimated, Net ** Electricity Cost Savings ($)

from Energy Production (Consumer)	$ 1,104,690	$ 20,794,850
from Energy Production (Commercial)	$ 2,321,635	$ 41,407,178
from Energy Efficiency (Consumer)	$ 12,668	$ 45,151
from Energy Efficiency (Commercial)*	$ -	$112,514,590

Average, Estimated, Net** Electricity Cost Savings ($)

from Energy Production (Consumer)	$ 92,058	$ 74,534
from Energy Production (Commercial)	$ 464,327	$ 1,427,834
from Energy Efficiency (Consumer)	$ 12,668	$ 9,030
from Energy Efficiency (Commercial)	$ -	$ 56,257,295

** Net savings calculations include tax credits, assume historical compounded growth rate increase depending of the rate schedule and island, and are net of loan payments required.

Average System Cost per Watt - All Consumers (PV) ($)	$ 3.75	$ 4.03
Average System Cost per Watt - Underserved Consumers (P	$ 3.81	$ 4.04
Average System Size - All Consumers (PV) (kW)	10.0	9.2
Average System Size - Underserved Consumers (PV) (kW)	9.3	9.0
Project Cost per kWh - All Consumers (Energy Efficiency) ($)	$ 0.22	$ 0.18
Average Project Size for All Consumers -- Energy Efficiency (	n/a	n/a
Project Cost per kWh - Underserved Consumers (Energy Efficiency) ($)*	$ 0.22	$ 0.18
Average Project Size - Underserved Consumers (Energy Efficiency) (kW)	n/a	n/a

VIII. Future Outlook

Leveraging public funds to attract private capital to facilitate clean energy adoption will remain a priority for the State to achieve its clean energy goals, both in the electricity and transportation sectors. With sufficient loan capital, the Authority is poised to play a critical role in the transition by providing below-cost, flexible financing with public funds that can be re-used, re-cycled and re-loaned in a sustainable manner.

In addition to continuing to deploy loan funds in existing programs, the Authority's goals over the next few years are to:

1. **Expand loan programs/products to fill market gaps and facilitate clean energy adoption in alignment with the state's goals.** This goal may be achieved and measured in a number of ways, such as:

   - Secure additional loan capital.
     With only a limited amount of GEMS loan capital left, HGIA will be seeking additional loan capital.
     The success of HGIA's ability to source additional loan capital will depend on the Legislature's approval to create a vehicle, such as a Clean Energy and Energy Efficiency Revolving Loan Fund, in which to deposit this new loan capital.

   - Launch additional loan products.
     New loan products and revising the eligibility requirements for existing products could include but not be limited to (1) leveraging the Green Energy Money $aver On-Bill repayment mechanism to facilitate Community Based Solar projects; (2) introducing a PV + Storage loan product; (3) modifying the existing GEM$ on-bill program to enable HGIA to finance solar hot water heaters for those LMI households with prior disconnection notices; and (4) financing the electrification of state fleet vehicles to EVs and installing EV charging stations, utilizing the savings resulting from exercising the option to purchase on existing PPAs for a budget neutral impact. The first three loan products will require approval from the PUC. The fourth loan product will require approval from the Legislature and the PUC.

   - Increase leverage of private capital.
     Lastly, exponentially increasing impact with the remaining available funds remaining may be accomplished by increasing the leverage of private to public capital. This may be achieved by providing credit enhancements to traditional lenders.

2. **Develop an Automated Online Loan Portal**. To gain efficiencies and increase the accuracy of data reported, HGIA will work on developing a loan portal to automate its loan approval process, including underwriting, documentation and metric calculations for reporting purposes.

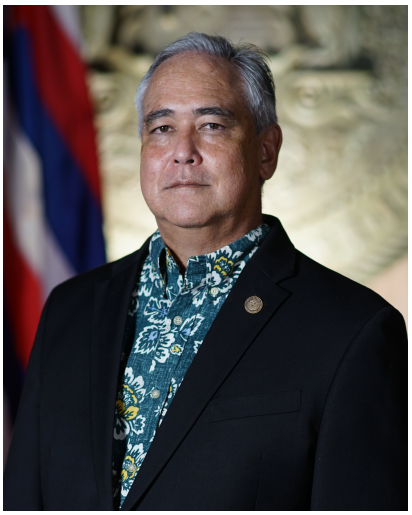
IX. Conclusion

The Authority is uniquely positioned to have a significant, positive impact in the coming years. As a market-based program, it is critical for GEMS financing to remain flexible and open to innovation in a rapidly moving sector of the market.

Additionally, the GEM$ on-bill repayment mechanism has tremendous potential to open new markets and enable more underserved ratepayers to access clean energy.

> ***"Who's doing the best job? Perhaps the best example of a state securitization program is Hawaii's Green Energy Market Securitization (GEMS) program which makes low-cost capital available to a broad range of participants including renters and lower credit score borrower's."***
>
> **Center for New Energy Economy**
> **February 18, 2019**

X. HGIA Board of Directors



Mike McCartney, Chair

Jeff Mikulina, Vice Chair

Scott Glenn, Secretary

Craig Hirai, Director

Dennis Wong, Director

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