



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

**DEPT. COMM. NO. 140**

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December 14, 2018

The Honorable Ronald D. Kouchi  
President and Members  
of the Senate  
Thirtieth State Legislature  
State Capitol, Room 409  
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki  
Speaker and Members of the  
House of Representatives  
Thirtieth State Legislature  
State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Hawaii Gren Infrastructure Authority's Annual Report, as required by Act 211, Session Laws of Hawaii 2013. In accordance with Section 93-16, Hawaii Revised Statutes, I am also informing you that the report may be viewed electronically at:  
<http://dbedt.hawaii.gov/overview/annual-reports-reports-to-the-legislature/>.

Sincerely,

Mary Alice Evans

Enclosure

c: Legislative Reference Bureau



**State of Hawaii  
Department of Business, Economic Development & Tourism  
Hawaii Green Infrastructure Authority**

**STATUS OF THE ACTIVITIES OF THE  
HAWAII GREEN INFRASTRUCTURE AUTHORITY**

**REPORT TO THE  
GOVERNOR AND THE LEGISLATURE  
OF THE  
STATE OF HAWAII**

**Pursuant to  
Act 211, Session Laws of Hawaii 2013  
December 2018**

**Prepared by the  
State of Hawaii  
Hawaii Green Infrastructure Authority**

**December 2018**

## **EXECUTIVE SUMMARY**

**Purpose.** Created by the Legislature to make renewable energy investments accessible and affordable to Hawaii’s consumers, the Hawaii Green Infrastructure Authority (“HGIA” or “Authority”) was capitalized with the Green Energy Market Securitization (“GEMS”) Bond, an innovative market-driven financing mechanism, to advance the State’s goal of achieving 100% renewable portfolio standard in the electricity sector by 2045.

**Progress.** The following are GEMS Program highlights, as of September 30, 2018:

GEMS Funds Committed	\$74.5 Million
GEMS Funds Remaining Available to Lend	\$53.8 Million
Excess Revenues Over Expenses – FY2018 <sup>1</sup>	\$1,304,140
Job Created/Retained	863.4
State of Hawaii Tax Revenues Generated	\$10,653,350
Total Estimated kWh Production/Reduction Over Lifetime	722,956,799
Total Petroleum Displaced Over Lifetime (Estimated Barrels)	444,022.1
Total Greenhouse Gas Avoided Over Lifetime (Estimated Metric Tons CO2)	217,557.5
% Underserved Households Served <sup>2</sup>	80.8%

### **Kahauiki Village.**

Kahauiki Village (“Village”) is the innovative public-private partnership development aiming to provide housing, coupled with employment opportunities within walking distance of the Village and on-site childcare, for previously homeless families with children. Together with private capital, HGIA provided financing for the microgrid infrastructure enabling the first 30 families to move into the Village on January 12, 2018. Unbeknownst to most, the installation of the utility’s meter was not able to be completed until mid-June 2018 when the Village was finally connected to Hawaiian Electric Company’s electric grid. Thanks to the microgrid, which could not be financed without the support of GEMS, the families were able to occupy their new homes as scheduled.



### **State Revolving Line of Credit.**

On May 3, 2018, the Legislature enacted, and on July 5, 2018, the Governor signed into law, Act 121 to create a sub-fund within HGIA’s green infrastructure special fund and convert \$50.0 million of GEMS funds into a revolving line of credit for any state agency or department to finance cost-effective commercial energy efficiency measures, subject to fund availability, on an on-going basis.

<sup>1</sup> Excess Revenue over Expenses before loan repayments aggregating \$646,729 returned to the Hawaii Public Utilities Commission per Order No. 34930 Amending Decision and Order No. 32318 By Changing the Priority Uses of GEMS Program Loan Repayments.

<sup>2</sup> Minimum Target for Underserved = 51%.

The Department of the Education is utilizing \$45.9 million under this revolving facility and is expecting to save over \$159.0 million in gross utility costs over the estimated useful life of the energy efficiency measures installed.



#### Green Energy Money Saver On-Bill Program.

On April 20, 2018, the Hawaii Public Utilities Commission (“PUC”) filed Order No. 35415 in Docket No. 2014-0135 conditionally approving the establishment and implementation of an On-Bill repayment mechanism. On June 1, 2018, HGIA began accepting applications for its Green Energy Money Saver (“GEM\$”) On-Bill Program.

Hawaii’s first commercial GEM\$ project was approved on June 18, 2018 to install a 413.31 kW solar photovoltaic system for a nonprofit, which is expected to result in significant bill savings of approximately 49% for the off taker. Hawaii’s first installed residential GEM\$ project was to install a solar hot water heater on a Department of Hawaiian Home Land residence on the island of Molokai.

#### Financial Viability.

During fiscal year 2018, HGIA posted excess revenues over expenses of \$1.3 million, prior to the required return of \$646,729 in loan repayments to the PUC. Similarly, for the three-month period ending September 30, 2018 in fiscal 2019, HGIA posted excess revenues over expenditures of \$548,000, prior to required return of loan repayments to the PUC. This demonstrates that if allowed to retain the interest income earned on loans extended, HGIA could be financially viable and self-sustaining.

**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 aggregate some \$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. By deploying low-cost capital efficiently through financing and lowering the cost of clean energy to spark consumer demand, rather than having the industry rely on subsidies that cannot bring markets to scale, the public sector’s goal should be to use public funds in a sustainable manner with the exponential potential for greater impacts by recycling, reinvesting and relending that same public dollar.

**Capital for Energy Innovation.** GEMS’ financing programs are uniquely positioned to have significant, positive impact in the coming years. We remain confident that the program can be instrumental in helping to achieve the State’s energy goals.

## **REPORT**

### **Reporting Pursuant to Act 211, Session Laws of Hawaii 2013**

This document fulfills the statutory requirement to report on the status of the Authority's activities, including approved loan program description and uses; summary information and analytical data concerning the implementation of the loan program; summary information and analytical data concerning the deployment of clean energy technology, demand response technology, and energy use reduction and demand-side management infrastructure, programs and services; and repayments made or credits provided to electric utility customers, pursuant to Section 9 of Act 211(13). The Authority respectfully submits this status report outlining the steps taken to further design, develop and deploy GEMS capital in 2018 as well as plans for 2019.

#### **I. GEMS Program Background and Context**

##### **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 deploy clean energy infrastructure that will 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 fund green infrastructure financing programs, leveraging public and private capital, to facilitate the achievement of the State of Hawaii's aggressive clean energy goals and provide opportunities for consumers 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.

##### **PUC Approval and Orders**

To effectuate Act 211, GEMS required Commission approval of its Financing Order and Program Order Applications. The PUC approved the GEMS Financing Order on September 4, 2014 and the GEMS 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.

As the GEMS Program continues to evolve to meet changes in market needs, subsequent Orders have been approved by the Commission since its initial Program Order, and includes the following:

Date	Order No.	Description
1/30/17	34368	Approved Program Notification No. 10: HGIA's request to finance consumer solar PV leases or power purchase agreements.
2/22/17	34421	Approved Program Notification No. 11: HGIA's request to finance energy efficiency retrofits for the Department of Education.
10/26/17	34930	Amending Decision & Order No. 32318 by Changing the Priority of the Uses of GEMS Program Loan Repayments and requiring HGIA to transfer all GEMS loan repayments collected to the Public Benefits Fund, before the payment of GEMS program costs.
4/2/18	35375	Conditionally approved Program Notification No. 11: HGIA's request to finance commercial energy efficiency measures.
4/20/18	35415	Conditionally approved HGIA & the Hawaiian Electric Companies' request to establish and implement an on-bill repayment mechanism.
5/30/18	35492	Conditionally approved Program Notification No. 13: HGIA's request to create a sub-fund and convert \$50.0 million into a revolving line of credit to finance energy efficiency for state departments or agencies.
12/6/18	35918	Approved the Establishment and Implementation of an On-Bill Repayment Mechanism and Associated Tariff

## 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 the Authority was approved for a staff of five (5) full-time employees, its original business model envisioned this very small staff to be primarily responsible for managing third-party vendors and consultants with all major functions of the Authority, such as marketing; contractor outreach, education and training; loan origination, loan underwriting, loan funding and loan servicing to be outsourced. \$100.0 million of the anticipated loan origination was delegated to Pacific Rim Bank and Clean Power Finance to finance commercial/non-profit PV projects and \$50.0 million of the anticipated loan origination was delegated to WECC/EFS to finance residential PV installations.

However, with the significant decrease in market demand and related downward adjustment to the solar PV industry in general following the end of Net Energy Metering, coupled with Program challenges experienced with all GEMS related marketing, training and loan functions being performed by vendors located outside of Hawaii, it became apparent that the Authority needed to evolve.

A significant change in HGIA’s business model was a deliberate decision to terminate all out-sourced functions, except for loan servicing, and bring all duties and responsibilities critical to the success of GEMS, in-house for increased focus, time-sensitivity and improved results. First with the launch of its [then] new commercial/non-profit loan products in October 2016, followed by the termination of its contract with the Wisconsin Energy Conservation Corporation on December 31, 2017, to bring all residential and commercial loan origination and processing in-house. Finally, in October 2018, HGIA terminated the outsourcing of its collection activities, also bringing these responsibilities in-house. This shift has enabled HGIA to significantly increase its loan activity and effectiveness, with the responsibility of business development, contractor outreach, loan origination, underwriting and collections being done locally by HGIA staff.

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

## II. 2018 GEMS Program Activities

### Lending Activities

Lending activity increased markedly over the past year with continued focus on residential loan program enhancements, accelerated adoption of our commercial loan products and the launch of our Green Energy Money Saver (“GEM\$”) On-Bill Program. As the Legislature envisioned in 2011 when it enacted Act 204, SLH 2011, HGIA launched its GEM\$ on-bill repayment mechanism on June 1, 2018, which enables low and moderate-income households, renters, nonprofits, small businesses and multi-family projects to install energy efficiency and/or solar PV systems to lower their cost of energy.

### Impacts (As of September 30, 2018)

The following are program metrics for year-to-date fiscal 2019 and since program inception.

#### 3.1 Energy and Environment Impact

<b>Clean Energy Production of Projects Financed</b>	<b>This Quarter: 7/1-9/30/18</b>	<b>FY 2019 To Date</b>	<b>Since Program Inception</b>
Installed Capacity (Actual kW)	733.6	733.6	5,934.1
Total Yr 1 Production (Estimated kWh)	1,089,604.8	1,089,604.8	10,129,075.0
Total Project Production Over Lifetime of Installed PV (Projected kWh) (including 0.50% degradation)	20,787,375.9	20,787,375.9	193,241,519.3
<b>Electricity Reductions from Energy Efficiency Projects Financed</b>			
Total Yr 1 kWh Reduction (Energy Efficiency)*	-	-	35,314,352
Total kWh Reduction Over Lifetime of Installed EE*	-	-	529,715,280



### Petroleum Displaced by Clean Energy and Energy Efficiency Projects

Total Petroleum Displaced/Saved Over Lifetime (Clean Energy and Energy Efficiency Projects (1)) (Estimated barrels)	12,767.1	12,767.1	444,022.1
Petroleum Displaced/Saved based on Yr 1 Clean Energy Generation (Estimated barrels)	669.2	669.2	6,221.0
Petroleum Displaced Over Lifetime of Installed PV (Projected barrels)	12,767.1	12,767.1	118,684.1
Cumulative Annual Petroleum saved from Yr 1 Efficiency Projects*	-	-	21,689.2
Petroleum Saved over Lifetime of Efficiency Projects*	-	-	325,338.0

### Greenhouse Gas Avoided

Total Greenhouse Gas Avoided (2) Over Lifetime (Clean Energy and Energy Efficiency Projects) (Est. metric tons CO <sub>2</sub> )	6,255.5	6,255.5	217,557.5
Greenhouse Gas Avoided from Clean Energy Yr 1 Production (Estimated metric tons CO <sub>2</sub> )	327.9	327.9	3,048.1
Greenhouse Gas Avoided Over Lifetime of Installed PV (Projected metric tons CO <sub>2</sub> )	6,255.5	6,255.5	58,151.7
Greenhouse Gas Avoided from Yr 1 Energy Efficiency*	-	-	10,627.1
Greenhouse Gas Avoided over Lifetime of Energy Efficiency Project*	-	-	159,405.9

(1) Reference unitjuggler.com for conversion metric.

(2) Reference eia.gov for conversion metrics.

## 3.2 Economic Development Impact

<b>GEMS Capital</b> (Cash Basis)	<b>This Quarter: 7/1-9/30/18</b>	<b>FY 2019 To Date</b>	<b>Since Program Inception</b>
GEMS Revenues	\$ 741,953	\$ 741,953	\$ 3,948,514
GEMS Administrative & Program Costs	\$ 193,445	\$ 193,445	\$ 3,688,670
GEMS Loans Funded	\$ 2,633,347	\$ 2,633,347	\$ 26,497,254
Indirect Economic Impact - Jobs Created/Retained (1)*	32.3	32.3	863.4
State of Hawaii Tax Revenues Generated*	\$ 398,828	\$ 398,828	\$ 10,653,350

(1) Jobs created or retained was previously calculated utilizing the SBA's metric of \$65,000/job. However, as a state program, we will be utilizing the State's metric of \$97,922/job for 2018.

### Projects Financed According to Technology Type/Category

Solar Photovoltaic Systems (1)	34	34	527
Energy Storage	0	0	0
Lighting Upgrades (2)*	-	-	965,000
HVAC Upgrades*	0	0	324
Mechanical Upgrades	0	0	0
Controls and Monitoring Devices	33	33	510.00
Energy/Water Nexus	0	0	0

Total No. of Projects	33	33	227
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(1) Including advanced inverters and smart modules.

(2) DOE Project: Interior and Exterior LEDs

### 3.3 Market Expansion Impact

<b>Residential PV Loan Program</b>	<b>This Quarter: 7/1-9/30/18</b>	<b>FY 2019 To Date</b>	<b>Since Program Inception</b>
Total No. of GEMS Loans	11	11	156
Total No. of GEMS Leases	21	21	52
Total No. of GEM\$ OBOs	0	0	0
Owner Occupied OBOs	0	0	0
Renter OBOs	0	0	0
No. Loans/Leases Serving Underserved Market (1)	26	26	168
% Loans/Leases Serving Underserved Market	81.3%	81.3%	80.8%

(1) See AMI Distribution

#### **Status of Applications (WECC):**

No. of Residential PV Applications Received	0	0	427
No. of Residential PV Applications In Process	0	N/A	N/A
No. of Residential PV Applications Declined	0	0	160
No. Residential PV Applications Withdrawn	-	0	126
No. of Residential PV Applications Loan Docs Accepted	2	N/A	N/A

#### **Status of Applications (Direct):**

No. of Residential PV Applications Received	35	35	103
No. of Residential PV Applications In Process	19	N/A	N/A
No. of Residential PV Applications Declined	7	7	27
No. Residential PV Applications Withdrawn	9	9	14
No. of Residential PV Applications Loan Docs Accepted	26	N/A	N/A

#### **Status of Applications (Leases):**

No. of Residential PV Applications Received	16	16	81
No. of Residential PV Applications In Process	11	N/A	N/A
No. of Residential PV Applications Declined	0	0	0
No. Residential PV Applications Withdrawn	0	0	2
No. of Residential PV Applications: Notice to Proceed	26	N/A	N/A

#### **Status of Applications (GEM\$ OBR):**

No. of Residential GEM\$ Applications Received	38	38	53
No. of Residential GEM\$ Applications in Process	19	N/A	N/A
No. of Residential GEM\$ Applications Declined	18	18	24
No. of Residential GEM\$ Applications Withdrawn	6	6	7
No. of Residential GEM\$ Applications OBO Docs Accepted	3	N/A	N/A

### Geographic Location

No. of Loans on Oahu	32	32	191
No. of Loans on Maui	0	0	9
No. of Loans on Molokai	0	0	0
No. of Loans on Lanai	0	0	0
No. of Loans on Hawaii	0	0	8

### Profile of Customers

#### Number of Customers By Customer FICO Credit Score

700 and above	20	20	110
675-699	8	8	44
650-674	3	3	26
620-649	0	0	18
600-619	1	1	10

#### Number of Customers By Income Distribution (self-reported by customers)

Under \$15,000	0	0	0
\$15,000-\$24,999	0	0	1
\$25,000-\$34,999	0	0	3
\$35,000-\$49,999	0	0	17
\$50,000-\$74,999	3	3	27
\$75,000-\$99,999	6	6	48
\$100,000 and Above	23	23	112

#### Number of Customers by Area Median Income (1)

<30% AMI (Extremely Low Income)	0	0	1
30% to <50% AMI (Very Low Income)	3	3	25
50% to <80% AMI (Low Income)	8	8	49
80% to <140% AMI (Moderate Income)	15	15	93
> 140% AMI	6	6	40

(1) Area Median Income as provided by the U.S. Department of Housing & Urban Development (HUD). <30% AMI - Extremely Low Income; 30% to <50% AMI = Very Low Income; 50% to <80% AMI - Low Income; 80% to <140% AMI = Moderate Income.

### Commercial Loan Program

	This Quarter: 7/1-9/30/18	FY 2019 To Date	Since Program Inception
Total Number of GEMS PV Loans	-	-	18
Total Number of GEMS EE Loans	-	-	1
Total Number of GEM\$ OBOs	-	-	-
Owner-User	1	1	1
Commercial Tenant	-	-	-
No. of Nonprofits Participating in GEMS	1	1	11

#### Status of Applications:

No. of Commercial PV Applications Received	2	2	31
No. of Commercial PV Applications Approved	2	2	26
No. of Commercial PV Applications Declined	0	0	0
No. of Commercial PV Applications Withdrawn	0	0	2
No. of Commercial PV Applications Under Review	3	N/A	N/A

No. of Commercial EE Applications Received	0	0	1
No. of Commercial EE Applications Approved	0	0	1
No. of Commercial EE Applications Declined	0	0	0
No. of Commercial EE Applications Withdrawn	0	0	0
No. of Commercial EE Applications Under Review	0	N/A	N/A
No. of GEM\$ Commercial Applications Received	3	3	4
No. of GEM\$ Commercial Applications Approved	0	0	1
No. of GEM\$ Commercial Applications Denied	0	0	0
No. of GEM\$ Commercial Applications Withdrawn	0	0	0
No. of GEM\$ Commercial Applications Under Review	3	N/A	N/A

**Geographic Location (1)**

No. of Loans on Oahu	1	1	13
No. of Loans on Maui	0	0	4
No. of Loans on Molokai	0	0	0
No. of Loans on Lanai	0	0	0
No. of Loans on Hawaii	0	0	3

(1) DOE loan benefits 241 public schools statewide (except Kauai)

<b>No. Small Businesses Participating in GEMS</b>	0	0	4
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**No. Small Businesses by Gross Receipts\***

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

**Number of Small Businesses by Average Number of Employees\***

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

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

<b>Number of Rental Units Supported by GEMS</b>	-	-	748
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**Marketing & Customer Service Activities**

GEM\$ Marketing & Program Outreach**	40	40	85
Contractor Calls and Support	510	510	715

Potential Customer Calls and Support	60	60	110
Existing Customer Calls and Support	240	240	305
Complaint Calls and Support***	1	1	2
Other Calls and Support	0	0	0

\*\* Marketing and Program Outreach may include, but not be limited to program updates, prospecting new contractors, GEM\$ education, nonprofit outreach, training, customer engagement, etc.

\*\*\*Both complaints were resolved with the Authority implementing additional procedures to ensure enhanced levels of communication to both applicants and contractors.

### 3.4 Cost Savings Impact

	This Quarter: 7/1-9/30/18	FY 2019 To Date	Since Program Inception
Aggregate Estimated <b>Gross</b> (1) Electricity Cost Savings from Energy Production and Reduction (life of system) (\$)	\$ 8,991,823	\$ 8,991,823	\$ 247,092,985
Aggregate Estimated <b>Gross</b> Electricity Cost Savings From Energy Production (life of system) (\$) (Consumer)	\$ 4,649,122	\$ 4,649,122	\$ 25,873,803
Aggregate Estimated <b>Gross</b> Electricity Cost Savings From Energy Production (life of system) (\$) (Commercial)	\$ 4,342,701	\$ 4,342,701	\$ 62,304,592
Aggregate Estimated <b>Gross</b> Electricity Cost Savings from Energy Efficiency (life of system)(\$)(Commercial)*	\$ -	-	\$ 158,914,590
<u>Average</u> Estimated <b>Gross</b> Electricity Cost Savings From Energy Production (life of system) (\$) (Consumer)	\$ 145,285	\$ 145,285	\$ 124,393
<u>Average</u> Estimated <b>Gross</b> Electricity Cost Savings From Energy Production (life of system) (\$) (Commercial)	\$ 4,342,701	\$ 4,342,701	\$ 3,279,189
<u>Average</u> Estimated Gross Electricity Cost Savings from Energy Efficiency (life of system)(\$)(Commercial)*	\$ -	-	\$ 659,397
Aggregate Estimated <b>Net</b> (2) Electricity Cost Savings From Energy Production (life of system) (\$) (Consumer)	\$ 3,743,129	\$ 3,743,129	\$ 16,773,589
Aggregate Estimated <b>Net</b> Electricity Cost Savings From Energy Production (life of system) (\$) (Commercial)	\$ 3,092,814	\$ 3,092,814	\$ 26,147,117
Aggregate Estimated <b>Net</b> Electricity Cost Savings From Energy Efficiency (life of system) (\$) (Commercial)*	\$ -	-	\$ 112,514,590
<u>Average</u> Estimated <b>Net</b> Electricity Cost Savings From Energy Production (life of system) (\$) (Consumer)	\$ 116,973	\$ 116,973	\$ 80,642
<u>Average</u> Estimated <b>Net</b> Electricity Cost Savings From Energy Production (life of system) (\$) (Commercial)	\$ 3,092,814	\$ 3,092,814	\$ 1,376,164
<u>Average</u> Estimated <b>Net</b> Electricity Cost Savings from Energy Efficiency (\$)(Commercial)*	\$ -	\$ -	\$ 466,866
<u>Average</u> System Cost per Watt for All Consumers (PV) (\$)	\$ 4.19	\$ 4.19	\$ 4.06
<u>Average</u> System Cost per Watt for Underserved Consumers (PV) (\$)	\$ 4.24	\$ 4.24	\$ 4.11

<u>Average</u> System Size for All Consumers (PV) (kW)	10.0	10.0	8.9
<u>Average</u> System Size for Underserved Consumers (PV) (kW)	9.7	9.7	8.9
Project Cost per Watt for All Consumers – Energy Efficiency (\$)	0	0	0
<u>Average</u> Project Size for All Consumers – Energy Efficiency (kW)	0	0	0
Project Cost per Watt for Underserved Consumers – Energy Efficiency (\$)	0	0	0
<u>Average</u> Project Size for Underserved Consumers – Energy Efficiency (kW)	0	0	0

(1) Savings calculation assumes a historical utility rate increase of 5.72% annually.

(2) Savings calculations includes tax credits, assumes a historical utility rate increase of 5.72% annually and is net of loan payments required.

\* Energy Efficiency metrics based on DOE's completed project plan. Hawaii Energy reports shall include GEMS/GEM\$ energy efficiency metrics

### III. 2019 Outlook and Plan

Although the GEMS program suffered setbacks during its first two years of existence, since 2017, the program continues to make significant advances. During the upcoming year, in addition to the continued deployment of funds under its existing loan programs, the Authority will seek Commission approval to expand its financing toolkit, including but not limited to the following:

- Solar PV Plus Storage Financing; and
- Community Based Renewable Project Financing

### Conclusion

The GEMS Program represents one way the State is innovating to transform access to clean energy technologies and achieve our ambitious clean energy goals. The reporting period has been a year of major milestones for the GEMS Program and the Authority.

Further, the Authority is eager to leverage its on-bill repayment mechanism to democratize clean energy by expanding access and affordability of renewable energy and energy efficiency projects for renters and low and moderate-income homeowners, and nonprofits, as was the original intent of the legislation.

GEMS funding is uniquely positioned to have significant, positive impact in the coming years. As a market-based program, it is critical for GEMS to remain flexible and open to innovation in a rapidly moving sector of the market. We remain confident that the program can be instrumental in helping to achieve the State's energy goals and objectives.