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March 31, 2016

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PUBLIC UTILITIES COMMISSION

The Honorable Chair and Members of the
Hawaii Public Utilities Commission
465 South King Street, First Floor
Kekuanaoa Building
Honolulu, Hawaii 96813

Dear Commissioners:

Subject: Docket No. 2014-0135 – GEMS Annual Plan

The Hawaii Green Infrastructure Authority respectfully submits the GEMS Annual Plan for Fiscal Year 2017: July 1, 2016 - June 30, 2017. This report fulfills the requirements for the Annual Plan in accordance with Hawaii Revised Statutes §196-64(b) and Decision and Order No. 32318, filed on September 30, 2014, in Docket No. 2014-0135.

Sincerely,

Tara Young
Executive Director

Attachment

c: Service List

State of Hawaii

Department of Business, Economic Development & Tourism

Hawaii Green Infrastructure Authority

ANNUAL PLAN

Fiscal Year 2017: JULY 1, 2016 – JUNE 30, 2017

REPORT TO THE
STATE OF HAWAII
PUBLIC UTILITIES COMMISSION
Pursuant to:

Hawaii Revised Statutes §196-64(b)
and
Decision and Order No. 32318 filed in Docket No. 2014-0135

MARCH 2016

Contents

1 Executive Summary

The Green Infrastructure Loan Program (also known as the "Green Energy Market Securitization Program" or "GEMS Program") employs a high-impact, market-based strategy to deploy clean energy infrastructure financing and to help consumers lower their energy costs. The GEMS Program is the result of Act 211, Session Laws of Hawaii 2013 ("Act 211"), which created the framework for establishing the GEMS Program; and Decision and Order No. 32318 by the Hawaii Public Utilities Commission ("Commission" or "PUC"), which approved the use of funds in the Green Infrastructure Special Fund to establish and institute the GEMS Program.

Since the issuance of the Commission's order, the Department of Business, Economic Development and Tourism ("DBEDT") has constituted the Hawaii Green Infrastructure Authority ("HGIA" or "Authority") and issued the bonds to capitalize the Green Infrastructure Special Fund, which funds the GEMS Program. Since funding, the Authority has worked to take loan programs from inception to marketable product. During this time, however, changes have occurred in the renewable marketplace that have profoundly affected all sectors of the industry, including HGIA. The changes to net metering and the 35MW cap on grid supply, most notably, have dramatically altered the prospects of the programs brought to market by the Authority. While the Authority funded its first consumer photovoltaic ("PV") loans in early 2016, market demand for this product has declined precipitously. As a market-driven program, it is critical that the Authority adapt to dynamic conditions rapidly to fulfill its mission. HGIA has moved aggressively to re-tool existing programs and develop new means of deploying capital to get ahead of trends in the market.

For Fiscal Year ("FY") 2017, the Authority plans to deploy about \$126M in funds through commercial (non-profit and small business) PV products, consumer PV and PV + battery products, commercial energy efficiency products and other projects that deploy capital for other approved eligible technologies. The administration budget for FY 2017 is approximately \$1M, which still constitutes an extremely efficient overhead ratio by comparison to other programs/institutions. In addition to developing new programs against which to sustainably deploy GEMS capital, the Authority is focusing on bolstering policies and risk management, compliance with Commission and statutory requirements, and improving the transparency with which we govern the program and report to our stakeholders.

2 Introduction and Background

The GEMS Program employs a high-impact, market-based strategy to deploy clean energy infrastructure financing that will contribute towards Hawaii's pursuit of its 100% renewable portfolio standard in the electric sector by 2045 and help consumers lower their energy costs. The GEMS Program is the result of Act 211, which created the framework for establishing the GEMS Program, including its oversight, governance, and reporting processes; and Commission Decision and Order No. 32318, which approved the use of funds in the Green Infrastructure Special Fund to establish and institute the GEMS Program.

As a part of Act 211, the Authority was established to fulfill specific duties, responsibilities and requirements.[1] As part of its statutory requirements, "the [A]uthority shall submit to the [Commission] an annual plan for review and approval no later than ninety days prior to the start of each fiscal year. The annual plan submitted by the [A]uthority shall include the [A]uthority's projected operational budget for the succeeding fiscal year."[2] The Authority therefore submits this Annual Plan Fiscal Year 2017, which covers the period from July 1, 2016 to June 30, 2017 ("Annual Plan").

2.1 Introduction and Procedural History

The Commission issued Decision and Order No. 32318, filed on September 30, 2014 in Docket No. 2014-0135 (the "Program Order") that approved the "Application of the Department of Business, Economic Development, and Tourism for an Order Approving the Green Infrastructure Loan Program," filed by the Authority ("Application") on June 6, 2014.[3] The Program Order approved the use of funds deposited in the Green Infrastructure Special Fund[4] to establish and institute the GEMS Program, subject to the modifications described within the order.[5]

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[1] Hawaii Revised Statutes ("HRS") §196-63 to §196-64.

[2] HRS §196-64(b).

[3] HRS §196-63 provides that until the Authority is duly constituted, the Department of Business, Economic Development, and Tourism of the State of Hawaii ("DBEDT") may exercise all powers reserved to the Authority pursuant to HRS §196-64, and shall perform all responsibilities of the Authority. As the Authority has now been duly constituted, the Authority assumes in its own right, pursuant to statute, all of the functions, powers, and obligations, including responsive or informational submissions in this Docket, which had heretofore been assigned to DBEDT.

[4] Concurrently with the proceedings in Docket No. 2014-0135, the Commission also examined the financing structure for the issuance of the GEMS bonds in Docket No. 2014-0134 and issued Decision and Order No. 32281, the "Financing Order", that approved the Green Infrastructure Fee that was securitized for the issuance of $150,000,000 in Green Energy Market Securitization Series 2014-A Bonds on November 13, 2014. The GEMS bond sale proceeds were deposited into the Green Infrastructure Special Fund.

[5] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 1 and restated on p. 33.

As stated in the Application and paraphrased from the Preamble of Act 211, the 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 Renewable Portfolio Standards and Energy Efficiency Portfolio Standards;
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 the GEMS Program 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.

2.2 Annual Plan Requirements

The Application submitted by the Authority further defined the Annual Plan as containing "information on the budget, operations, and financial plans for the coming fiscal year."[6] The Program Order then placed requirements on the contents of the Annual Plan in addition to the statutory plan requirements in HRS §196-64(b) and the description in the Application. Specifically, the Program Order states the importance of administrative cost controls, concluding that it is part of the goal to use capital as efficiently as possible and directs the Authority to submit these as a part of its initial Annual Plan.[7] The Program Order also requires that the Authority include:

1. Summaries of all Quarterly Report information provided over the Annual Plan reporting period.[8] The Quarterly Reports also contain information required for the Annual Plan, such as:
    a. Information on the use of GEMS funds for utility-scale projects and specifics that need to be reported in the event that GEMS funds are used for utility-scale projects.[9]

[6] See "Application of the Department of Business, Economic Development, and Tourism for an Order Approving the Green Infrastructure Loan Program," filed in Docket No. 2014-0135 on June 6, 2014, at p. 17.
[7] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 39.
[8] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 95.
[9] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 59-60.

b. A report of the "details of any failure on the part of any Deployment Partner to comply with these consumer protection policies to the [C]ommission, including the number of complaints and the steps taken to address such complaints".[10]
c. Information on utility system costs resulting from GEMS Program-funded projects.[11]

2. "[D]etailed consideration and discussion of how the green infrastructure [HGIA] proposes to finance will be successfully integrated into the grid, and how such infrastructure will continue to support the ongoing transformation of the State's electric systems over time."[12]
3. Summarized "[final] details of both the direct billing and On-bill Mechanism to be used in the GEMS Program".[13]

The Annual Plan is also a means by which the Commission may approve additional GEMS Program elements.[14] In this Annual Plan, the Authority is not seeking approval for any additional GEMS Program elements.

3 Summary of Activities

3.1 Quarterly Report Summary

Since the filing of the Annual Plan Fiscal Year 2016 in March 2015, the Authority has submitted four Quarterly Reports to the Commission: "Quarterly Report: January 1, 2015-March 31, 2015"; "Quarterly Report: April 1, 2015-June 30, 2015"; "Quarterly Report: July 1, 2015-September 30, 2015"; and "Quarterly Report: October 1, 2015-December 31, 2015" ("Quarterly Reports"). During the reporting period January 1, 2015 to December 31, 2015 ("Reporting Period"), the GEMS Program had not released any capital to fund eligible technologies. Reporting focused mainly on summary activities during the Reporting Period. The following is a summary of the activities reported in the Quarterly Reports filed with the Commission in Calendar Year 2015.

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[10] Consumer protection policies must be developed by the Authority. See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 65-66.
[11] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 97.
[12] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 50.
[13] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 71.
[14] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 92, though "program elements" are not defined, the Program Order refers to "program elements" on p. 42).

3.1.1 Summary of Administration Activities

The following activities were reported in the Quarterly Reports. Additional activities that occurred after December 31, 2015 are reported in Section 3.2 and will be reported in the next GEMS Quarterly Report for the quarter ending March 31, 2016.

- Four board members were confirmed in 2015: Luis Salaveria (Director of DBEDT); Wesley Machida (Director of Budget and Finance); Mark Glick (Energy Program Administrator); and Jeffrey Mikulina (Executive Director, Blue Planet Foundation). Kalbert Young (VP of Budget and Finance and CFO, University of Hawaii System) was appointed by Governor Ige to fill the vacant board position effective November 19, 2015. Mr. Young's appointment was confirmed by the Senate on March 11, 2016.
- The Authority held four board meetings: February 26, 2015; May 29, 2015; August 5, 2015; and October 1, 2015.
- The Authority held a board meeting on October 1, 2015, at which the board appointed Tara Young as Executive Director. Ms. Young's start date was on October 16, 2015.

3.1.2 Summary of Program Development and Implementation

The following program development and implementation activities were reported in the Quarterly Reports. Additional actions that occurred after December 31, 2015 are reported in Section 3.2 and will be reported in the next GEMS Quarterly Report for the quarter ending March 31, 2016.

- Program Notification Filings – The Authority filed four Program Notifications during the Reporting Period.
  - A Program Notification for PV-Related Technologies (technologies that are components of a PV system which may be more advanced than the standard PV system) was filed on April 2, 2015.
  - A Program Notification that provides additional information on the Small Business Loan Product and increases flexibility of the Non-Profit Loan Product and the Consumer Loan Product was filed on April 8, 2015.
  - A Program Notification that addresses additional Program Order requirements regarding consumer protection policies, fund deployment and billing was filed on July 1, 2015.
  - A Program Notification that allows the GEMS Program to finance commercial energy efficiency products was filed on July 15, 2015.
- The Non-Profit and Small Business PV Product was launched in March 2015 and terminated in December 2015. The program partner, Clean Power Finance, notified the Authority that it discontinued participation in the program due to the loss of tax equity

and inability to secure a replacement partner. Prospective borrowers who had submitted applications were notified and connected with alternate financing parties. No loans were funded under this program.

- On June 30, 2015, the GEMS Consumer PV Product opened to accept applications. Project construction will not commence until utility interconnections are approved and project funding will not occur until PV projects are completed and NEM/DER agreements are executed. The Authority secured partners for both the origination and servicing of the loan program. At the end of the Reporting Period, 121 applications were received, 16 applications were approved, 36 application were under review, 54 applications were declined and 15 applications were withdrawn. No consumer loans were funded in 2015.
- Metrics Development – Pursuant to the directives within the Program Order,[15] HGIA submitted Proposed GEMS Program Metrics to the Commission on October 21, 2014. The final GEMS Program Metrics were submitted to the Commission on December 9, 2014 with supporting documentation. Based on comments from the Consumer Advocate dated April 25, 2015, May 15, 2015 and July 29, 2015, GEMS Program Metrics were modified and submitted to the Commission on August 14, 2015. Additional metrics will be determined and included as new technologies and products are added to the GEMS Program and approved by the Commission. The Authority has also continually discussed methods for the accumulation and communication of applicable metrics data for the GEMS Program with the HECO Companies[16] and potential Deployment Partners.[17]

3.2 Additional Activities

The following represent a summary of some of the activities that have occurred since the Quarterly Reports and which have therefore not yet been reported to the Commission. They will appear in the Authority's next quarterly report due to the Commission on April 30, 2016, covering the activities from January 1, 2016 through March 31, 2016.

- The Authority held a board meeting on January 21, 2016, at which the board approved submission of a supplemental budget request to increase the $1M HGIA expenditure ceiling for FY 2017 by $500,000. Subsequent to the budget request submission deadlines, Ms. Young was hired in October 2015 and conducted an assessment of FY 2017 budget and details. The challenge of deploying $145M within the next three years

[15] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 90.
[16] The HECO Companies are Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Ltd.
[17] "Deployment Partners" are private sector entities that will use GEMS Program capital to directly or indirectly support financing products serving ratepayers.

requires additional and experienced staff to get the programs to market in a competitive time frame. The $500,000 request is for two associate positions and one analyst position, as well as additional contractual services. If HGIA were to get the additional expenditure ceiling increase approved, total expenses over a 3-year period until all capital is deployed would be less than 3% of the total capitalization and less than comparable organizations. The Department of Budget and Finance ("B&F") did not recommend approval and Governor did not include the requested $500,000 expenditure ceiling in the Executive Supplemental Budget Request for FY 2017.

- The Authority is seeking a $45M increase in its FY 2017 appropriation ceiling for the issuance of green infrastructure loans. This request was included in Governor's Message 10 to the Legislature. While, as reported in the FY 2016 Annual Plan, the Authority had already received appropriations from the Legislature in FY 2015 for all funds to be deployed as loan capital in the GEMS Program, the Attorney General has indicated an appropriation ceiling is appropriate for expenditures out of the GEMS special fund. The current FY 2017 appropriation ceiling of $1M for the GEMS special fund did not account for this.
- The Authority is in discussions to finance a $100M energy efficiency and heat abatement program for the Department of Education ("DOE"). The Authority filed Program Notification No. 6 to deploy capital to government agencies for commercial energy efficiency. Program Notification was filed on February 23, 2016. The fifteen-day review period for the Program Notification ended on March 15, 2016. The Commission conditionally approved the Program Notification, provided that the Legislature and Governor enact legislation authorizing an appropriation out of the GEMS special fund to loan such moneys to DOE and B&F for capital improvement program equipment, installation costs for air conditioning, energy efficiency lighting, and other energy efficiency measures related to heat abatement at public schools. In the event that such legislation is not enacted, the approval shall be deemed void and of no effect. The Authority shall not deploy any funds to State agencies under Program Notification No. 6 in excess of borrowing amounts authorized by the Legislature. A decision on whether all or a portion of the proposed DOE program will be financed by the Authority is subject to board and legislative approval, expected April 2016.
- On February 11, 2016, the Authority made a presentation to all docket parties at an Informal Technical Conference to update on current status of the program and discuss proposed future uses and deployment of GEMS funds.
- The Authority approved a capital partner, Metrus Energy, for the Commercial Energy Efficiency Product. Marketing for the program will launch in April 2016. The sales cycle for these loans can be lengthy, because there is considerable engineering work required

on the part of the borrower and the transactions tend to be large. The first funding from the pipeline may not materialize until early 2017.

The following is a timeline of the major GEMS events that have occurred since Act 211 was signed into law:

FY Quarter	Milestones
FY 2014 Q4: APR - JUN 2014	• Financing Order Application submitted • Program Order Application submitted
FY 2015 Q1: JUL - SEP 2014	• PUC approval of Financing Order • PUC approval of Program Order
FY 2015 Q2: OCT - DEC 2014	• Hawaii Green Infrastructure Authority constituted • Green Energy Market Securitization Bonds 2014 Series A of $150,000,000 issued • GEMS Program metrics submitted to the PUC • Program Notifications for non-profit PV product and consumer PV product filed
FY 2015 Q3: JAN - MAR 2015	• Motion to Waive or Amend Qualified Source of Capital Requirements (to use PUC's on-bill mechanism) filed • Board approval to enter into agreements with Deployment Partners • Non-profit product launched • Quarterly Report (October-December 2014)
FY 2015 Q4: APR – JUN 2015	• Program Notification for PV-related technologies filed • Program Notification with additional information for small business PV product and modifications of non-profit PV product filed • Program Notification addressing additional Program Order requirements filed • Consumer product launched • Quarterly Report (January-March 2015)
FY 2016 Q1: JUL – SEP 2015	• Program Notification for commercial energy efficiency product filed • Quarterly Report (April-June 2015)
FY 2016 Q2: OCT – DEC 2015	• Executive Director hired • Submission of Annual Report to the Legislature • Quarterly Report (July-September 2015)
FY 2016 Q3: JAN – MAR 2016	• Completion of Annual Audit • Program Notification for commercial energy efficiency product for government agencies filed • Commercial energy efficiency product finalized • Quarterly Report (October-December 2015)

4 Budgets and Administrative Cost Controls

During FY 2017, the Authority intends to deploy approximately $126M in capital (see Section 4.1) and expend approximately $1M on administration costs (see Section 4.2). The Authority is anticipating complete deployment of funds by the end of FY 2018 and anticipates that future administrative costs beyond FY 2018 will be paid through interest income from loan repayments, which enables the program to be self-sustaining.

4.1 Projected Fund Deployment

In spite of the challenging environment, the Authority has set aggressive goals for deploying GEMS capital in FY 2017. Should loan volumes not meet projections, the Authority may reallocate funds between loan products and/or other projects.

Projected Fund Deployment FY 2017

Consumer PV	$1M
Consumer PV with battery storage	$5M
Commercial energy efficiency	$5M
Commercial PV	$10M
Other[18]	$5M
Subtotal	$26M
DOE project[19]	$100M
Total	$126M

[18] Forecasts project financing sourced via Open Solicitation process (See "Programs in Development" below)
[19] Subject to legislative approval. Should such approval not be secured, capital will not be deployed. Other opportunities may exist to deploy GEMS capital in support of renewable energy or efficiency improvements with other State agencies.

Proposed Administrative Budget for FY 2017

		FY17
ADMINISTRATIVE STAFF		
Salaries	$	414,400
Fringe Benefits		145,000
Subtotal	$	559,400
OPERATING EXPENSES		
Supplies & Equipment	$	12,200
Travel Transportation & Subsistence		17,000
Out Service Training & Support		4,000
Other Services & Legal Notices		6,000
Other Administrative Expenses		3,000
	$	42,200
PROGRAM SUPPORT		
Program Administration	$	25,000
Legal Services		150,000
Audit Services		79,000
Financial Advisor		125,000
Subtotal	$	379,000
TOTAL BUDGET	$	980,600

4.2 Administrative Cost Controls

The board must approve the actions and expenses of the Authority, including approvals to enter into contracts with Deployment Partners. Additionally, the HGIA funds that can be used for administrative costs are in the Green Infrastructure Special Fund, which is subject to the appropriation and allotment processes and approval procedures of the Hawaii Revised Statutes, Chapter 37, Part II, which describes the means through which funds must be appropriated and used. This requirement means there must also be legislative appropriation for ongoing expenses from the fund, in addition to approval by the HGIA board, DBEDT and B&F for expenditures.

The GEMS Program is meant to use existing market service providers and channels as Deployment Partners to expand access to the market. The use of existing market service providers as Deployment Partners reduces administrative costs because those partners will already have the experience and infrastructure in place, such as IT, marketing, etc. Since there is no need for the Authority to duplicate services that will be provided by its Deployment Partners as part of their business, it is also operating without as much administrative burden, thereby reducing administrative costs.

The Authority is also committed to operating efficiently. The State has set a precedent of restricting administrative expenses to a percentage of a fund. The statutory restriction for administrative costs for the Public Benefits Fee Administrator is 10% of the collected public benefits fees in any fiscal year.[20] The administrative expense restriction placed on the Tourism Special Fund is 5% of money in the special fund.[21] However, in the GEMS Program, there is an upfront pool of capital and continual money flow rather than annual program funds. Therefore, the traditional cost control guidelines are not applicable to the GEMS program during the deployment period (the first five years). Based on benchmarks from other green banks, 6-8% of initial capitalization is a reasonable expectation for administrative costs to deploy capital. The New York Green Bank has an explicit cap at 8% of initial capitalization, and we aspire to outperform this benchmark. The Authority is restricting administrative costs to 5% of the total capital during the deployment period. After the initial deployment period, cost controls will be based on the percentage of income from loan repayments. Currently, to support the $143M for deployment, the Authority has an administrative budget of approximately $1M for FY 2017.

5 Operations and Financial Plans for FY 2017

5.1 Existing Programs

5.1.1 Consumer PV

On a positive note, the first GEMS loans were funded in January 2016. In spite of this positive milestone, uptake of this program has been disappointing. Multiple factors have contributed significantly to the current state of the program:

- End of the net metering tariff
- High availability of commercial loan products with competitive terms and easier administrative processes
- HECO interconnection issues and permitting backlog

We currently have 13 Deployment Partners engaged in the program. In the near term, we are making two immediate changes to improve the competitiveness of the program:

- Modifying the underwriting standards—based on feedback from Deployment Partners—to broaden the applicability of the program. These changes are complete and we are now working with Deployment Partners individually to 'relaunch' the program with the new policy, targeting their existing queues of NEM-approved homeowners for whom GEMS financing might apply.

[20] HRS §269-122 (a).

[21] HRS §201B-11 (c).

- Working to address the issue of ineligible properties, notably the exclusion of properties held in a trust, which constitutes almost half of the rejected applications to date.

While we expect these actions to favorably affect the pipeline and approval rates, the long-term growth prospects of the program (as currently designed) are limited as a direct consequence of the factors noted above. The effect of the net metering tariff was almost immediate—we received 101 applications in the period from June 30th to October 13th and only 41 applications from then until present. PV systems without battery storage are unlikely to present an attractive opportunity to consumers in the future due to the 35MW cap on grid supply. While we will continue to promote the program, and expect to complete the coming fiscal year with approximately $1M in capital deployed, we believe the potential going forward is limited by the broader market environment. Our focus will shift to solutions that include PV with battery storage, which will be increasingly compelling solutions for consumers in today's energy market.

5.1.2 Non-Profit Renewables

This program has been received with interest by local institutions. It has an inherently longer sales cycle than consumer loans. The issues constraining the execution of this program are:

- The same policy issues that have hindered the growth of the Consumer PV program (see above)
- A relatively small addressable market, comprising institutions with involved governance processes
- Commercial entities targeting this market segment with commercial financing products

Adding to the challenges for this program is that the program partner, Clean Power Finance, notified the Authority in December 2015 that they will be dropping their participation in the program due to a loss of tax equity. Consequently, all marketing activities related to the program were suspended. While non-profit entities may access GEMS capital through individual project finance opportunities (see "Commercial PV" below), the Authority's forecast does not include any capital deployed under the Non-Profit Renewables program approved under the Commission program order.

5.1.3 Commercial Energy Efficiency

A Program Notification for this program was filed on July 15, 2015. The Authority is working with its Deployment Partner, Metrus Energy, to begin marketing this product in April 2016. This innovative program provides up-front financing for efficiency improvements in exchange for a portion of verified, measurable energy savings. Doing so eliminates the capital costs that can be a barrier to implementation of efficiency improvements and focuses on verifiable, measurable improvements in efficiency which advance the State's energy goals. Because this program focuses on efficiency improvements, it is complementary to HGIA's portfolio of financing products and less vulnerable to recent policy developments. The sales cycle for these loans can be lengthy, because there is considerable engineering work required on the part of the borrower and the transactions tend to be large. While the first funding may not materialize until later in the fiscal year, the Authority anticipates approximately $5M in capital deployed during the fiscal year as part of this program.

5.2 Programs Under Development in FY 2017

5.2.1 Consumer PV with Battery Solutions

There are two simultaneous market developments that make battery storage an increasingly attractive part of a PV solution in Hawaii:

(1) Technology: battery technology, while not mature, has reached a level of broad commercial offerability and economic performance. Products can be installed with warrantees and there is intense competition between OEMs to establish their market position among early adopters.
(2) Public policy: the combination of the Commission's net metering changes and the 35MW cap on grid supply means that any future residential PV installations within the State will not be possible without inclusion of a battery storage system.

We have had extensive discussions with our installer partners and other members of the energy community in the State, and there is a sense that battery will be an emerging area of opportunity for financing. Because of the relative newness of the asset, there is a need for a party to step in and offer a financing product for these loans. Doing so will accelerate adoption, driving both incremental new PV installations and as a retrofit to existing installations. A program will also have the public benefit of spurring commercial institutions to bring competitive financing programs to market. If HGIA can move quickly into partnership with installers on this opportunity, we can avoid the pitfalls experienced with the Consumer PV program, which came relatively late to a market already flooded with competitive alternatives.

We are actively pursuing discussions with installers and counterparties. The next step is to get term sheets from the installers to define the product and economics that would be financed through GEMS. The goal will be to have a commercial offering prepared and with installers to coincide with the end of grid supply and the Authority anticipates deploying $5M in GEMS capital by the end of FY 2017.

5.2.2 Commercial PV

The Authority contemplates participating in PV projects for commercial and non-profit institutions. Lending would be conducted in conjunction with local financial institutions, with GEMS funds contributing part or all of the capital. Doing so would allow the Authority to access other institutions' pipelines for loans and compete with agility in a crowded marketplace for renewable energy lending. Such programs may be subject to a further Program Notification, which the Authority will submit. HGIA expects to deploy approximately $10M in GEMS capital in FY 2017.

5.2.3 Other

The Authority is continuing to work in partnership with the DOE and other State entities to support the Governor's initiative for cooling schools. The deployment of GEMS capital against this opportunity is subject to legislative approval. HGIA will continue to work with DOE and other State entities, which constitute some of the largest users of electricity in the State, on opportunities to responsibly finance renewable energy and energy efficiency investments.

The Authority is also seeking to establish an Open Solicitation process for proposals related to deployment of GEMS funds. Doing so is consistent with best practice by Green Banks and similar State entities and provides a consistent, transparent approach to sourcing opportunities for capital deployment. HGIA anticipates development and launch of this process by the end of FY 2016. Should such a process be successfully established, the Authority forecasts deployment of approximately $5M in capital during FY 2017.

We continue to explore opportunities in the community solar space, which we believe holds great long-term promise for GEMS funding by opening access to renewables to a much wider range of utility ratepayers. However, the current status of the investigative docket with the Commission means that we are unlikely to be able to deploy GEMS capital to this purpose until at least 2017.

5.2.4 Administration and Operating Controls

The Authority continues to engage contractors as necessary to provide appropriate audit and administrative functions.

The Authority is creating a volunteer Credit Committee comprising experienced banking officers from major financial institutions in the State in order to better assess credit risk and advise upon best practices in lending as the programs begin to deploy capital in earnest.

5.2.5 *Projects and Partnerships*

The Authority is working with the HECO Companies to determine equipment and data necessary to define and measure the utility systems costs of additional PV deployment in Hawaii (see Section 6.5). Ultimately these data can help to determine if there are economical ways to increase interconnection through the incorporation of advanced technologies that are part of distributed energy resource strategies.

The Authority is also establishing an Open Solicitation process for project proposals from potential project developers. Any such projects that are determined by the Authority and the Authority's Board to be an effective use of GEMS funds in accordance with the key objectives of the GEMS Program (Section 2.1) will be submitted to the Commission via the Program Modification or Program Notification process as appropriate.

5.3 GEMS Operations Timeline

Quarter	Target Milestones
Prior to FY 2017	• Launch Commercial Energy Efficiency Product • Open Solicitation process begins • Submission of Program Notification for Non-Profit and Commercial PV Product • Submission of Program Notification for Consumer PV + Battery Storage Product • Fill vacant positions (Program Officers and Executive Assistant) • Completion of GEMS Program policies • Submission of Quarterly Report (January – March 2016)
FY 2017 Q1: JUL - SEP 2016	• Launch Consumer PV + Battery Storage Product • Evaluation of PV in the Rental Market • Submission of Quarterly Report (April – June 2016)
FY 2017 Q2: OCT - DEC 2016	• Submission of Annual Report to the Legislature • Completion of Annual Audit • Submission of Quarterly Report (July – September 2016)
FY 2017 Q3: JAN -MAR 2017	• Submission of Annual Plan FY 2018 • Submission of Quarterly Report (October – December 2016)
FY 2017 Q4: APR - JUN 2017	• Submission of Quarterly Report (January – March 2017)

6 External Factors Affecting the GEMS Program and Additional Information

6.1 Finalized Details of Direct Bill and On-Bill Mechanism

In its Application, the Authority requested approval to utilize both direct billing and on-bill repayment, specifically, to use the on-bill mechanism being developed by the Commission in Docket No. 2014-0129. The Commission stated its "strong support" of GEMS Program use of the on-bill mechanism and approved the use of the mechanism for the GEMS Program once the details of the mechanism are finalized.[22] The Commission instructed DBEDT/the Authority to continue to work closely with parties in Docket No. 2014-0129 and to file a request to waive or amend any qualifications required to become a Qualified Source of Capital[23] with the Commission in Docket No. 2014-0129.[24]

The Authority filed its motion to waive or amend qualifications on January 26, 2015.[25] The HECO Companies and the Division of Consumer Advocacy ("CA") submitted responses to the Authority's motion. The CA protested the motion, requesting that the motion be suspended for further review of the appropriateness of the requests, specifically wanting to know if there were increased costs to the HECO Companies and Hawaii Energy Bill $aver Program administrators, and why different Qualified Source of Capital Fees were being proposed.[26] The Authority submitted a memorandum explaining that the intention of the Authority is to work within the parameters of the Hawaii Energy Bill $aver Program as proposed and therefore not intending to cause other entities to incur additional costs.[27] On April 15, 2015 the Commission granted the requests made by the Authority in the Motion and encouraged the direct collaboration of the Hawaii Energy Bill $aver Program Entities and the Authority, and confirmed

[22] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 68.
[23] Qualified Sources of Capital are capital sources that are approved for use of the on-bill mechanism being developed in Docket No. 2014-0129.
[24] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 70-71.
[25] See "The Department of Business, Economic Development, and Tourism's Motion to Waive and/or Amend Qualifications to Qualified Source of Capital Requirements as Specified in the Hawaii Energy Bill $aver Program: Program Manual" filed in Docket No. 2014-0129 on January 26, 2015.
[26] See "Division of Consumer Advocacy's Protest of the Department of Business, Economic Development, and Tourism's Motion to Waive and/or Amend Qualifications to Qualified Source of Capital Requirements as Specified in the Hawaii Energy Bill $aver Program: Program Manual" filed in Docket No. 2014-0129 on February 2, 2014.
[27] See "Memorandum of the Department of Business, Economic Development, and Tourism, in Response to the Division of Consumer Advocacy's Protest of the Department's Motion to Waive and/or Amend Qualifications to Qualified Source of Capital Requirements as Specified in the Hawaii Energy Bill $aver Program: Program Manual" filed in Docket No. 2014-0129 on February 27, 2015.

that GEMS Program repayments that use the Commission's on-bill mechanism are Green Infrastructure Charges within the meaning of HRS §196-61.[28]

The use of the on-bill mechanism is critical to the pricing of the GEMS Consumer PV Product as the mechanism offers an additional security of electricity service disconnection for non-payment. This credit enhancement is viewed as essential for the GEMS programs and crucial for accommodating the underserved markets. The Authority is working with a consumer loan servicer that is able to provide both on-bill and direct bill loan servicing. The servicer has extensive experience with other on-bill programs and appears to have both the expertise and infrastructure to accommodate the Commission's Hawaii Energy Bill $aver Program on-bill mechanism. The Bill $aver Program's Finance Program Administrator is responsible for development of the on-bill mechanism and has been engaged in discussions with the Authority's servicing contractor to finalize details for utilizing the on-bill mechanism. This information will be filed as Program Notifications as instructed by the Commission, which stated in the Order "Finalized details of both the direct billing and [o]n-bill [m]echanism to be used in the GEMS Program are to be submitted to the Commission in [Docket No. 2014-0135] as Program Notifications".[29]

6.2 Infrastructure Integration into the Grid

In regards to the issue of PV interconnection, which may greatly impact the deployment of GEMS funds, the HECO Companies and the Commission agreed on February 27, 2015 that the HECO Companies would not take unilateral action to deny or delay residential interconnection of PV. In cases where the HECO Companies deem that a residential interconnection application impacts circuit or system level security or reliability, the HECO Companies must fully document their reasons for denying the application and provide advance notification to the Commission of the denial prior to the issuance of the denial.[30] This agreement has a positive impact on PV interconnection and will allow the GEMS Program and its Deployment Partners to serve more consumers.

In October 2015, the Commission announced the discontinuation of net energy metering for new residential PV customers in Hawaii. The new tariffs significantly alter the economic returns and commercial incentives for traditional residential PV installations. This change has had a significant near-term impact on demand for, and the long-term potential of, the GEMS Consumer PV program. While HGIA has deployed capital in the Consumer PV program, the

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[28] See "Order No. 32778 Granting the Department of Business, Economic Development, and Tourism's Motion to Waive and/or Amend Qualifications to Qualified Source of Capital Requirements as Specified in the Hawaii Energy Bill $aver Program: Program Manual" filed in Docket No. 2014-0129 on April 15, 2015.

[29] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 71.

[30] See "Letter Agreement" filed via "Transmittal Memorandum" by the Commission in Docket No. 2014-0192 on March 9, 2015.

pace of new applicants fell precipitously when net metering came to an end. Without modification, the program will not reach a sustainable scale.

At the same time, this change creates new, compelling incentives for alternative technologies and financing programs. HGIA plans to make GEMS financing products available to fund grid-connected, non-export or smart-export PV systems that meet interconnection requirements. This effort includes collaboration with the utilities to potentially test non-export and smart export residential and commercial systems that address the correct sizing of clean energy and storage systems to make such systems cost-effective for participants, while also saving energy and minimizing grid impact. Details of such financing will be shared through the Program Notification process as defined in the DBEDT Application and modified in the Program Order. Since these systems will include energy storage components, the Authority will include a financial market assessment and cost benefit analysis with any Program Notification.

HGIA plans on continuing to work with applicable energy industry stakeholders, the utility, solar developers, solar installers, technology providers and other Deployment Partners to more effectively create products that broaden the underserved market's access to PV under approved interconnection guidelines while judiciously expending the Green Infrastructure Special Fund proceeds.

6.3 Consumer Protection Policies

The Program Order directed the Authority to "provide full details of the GEMS Program consumer protection policies it develops to the [C]ommission"[31] and to "report the details of any failure on the part of any Deployment Partner to comply with these consumer protection policies to the [C]ommission, including the number of complaints and the steps taken to address such complaints" in its Quarterly Reports.[32]

The GEMS Program submitted its consumer protection policies in a Program Notification to the Commission on July 1, 2015. [33]

There have been no Deployment Partner complaints for the GEMS Deployment Partners.

6.4 Utility-Scale Project Financing

The Program Order instructed the Authority to summarize and report information about utility-scale project financing during periods where utility-scale project financing is initiated and the project is operated. [34] The Authority has not been focusing any efforts on initiating utility-scale

[31] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 66.
[32] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 66.
[33] See "Program Notification No. 4 for the Green Infrastructure Loan Program" filed in Docket No. 2014-0135 on July 1, 2015 at p. 4-5.
[34] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 60.

projects in the Reporting Period and there are no utility-scale projects that have been financed or are currently being discussed.

6.5 Utility System Cost Information Update

The Program Order directed the Authority to "work with the HECO companies and the Consumer Advocate to determine the appropriate GEMS Program-related utility system cost information for reporting purposes, and to provide an update on the finalization of these utility system costs and impacts reporting requirements as part of DBEDT's first Quarterly Report filing."[35] Though "utility system cost" was not defined in the Program Order, the Consumer Advocate refers to these costs as costs "incurred as result of [distributed generation] PV or other clean energy projects financed by the GEMS [P]rogram."[36] Since the Program Order was issued, the Authority has been actively meeting with the HECO Companies to identify ways to integrate data that is currently available with data that will be obtained through monitoring and other means to quantify and analyze potential utility system costs due to distributed generation. The Authority will continue to update the Commission on utility system cost information as this discussion continues.

7 Conclusion

HGIA and the GEMS program are breaking new ground nationally in the financing and enablement of high-value alternative energy programs. Since HGIA is focused on mobilizing capital into categories of projects that are not currently addressed by the current commercial market, it should be understandable that its largely unprecedented programs take significant time and effort to come to fruition. 2015 marked the first full year of our deployment phase, during which two new programs were brought to market. External factors negatively affected the early success of these programs, but HGIA has identified several emerging opportunities in which 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 achieving the State's energy sustainability.

The ambitious goals of the GEMS program cannot be achieved without with the support and collaboration of the Commission, the Consumer Advocate, the electric utility and industry partners, for which the Authority is deeply grateful.

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[35] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 95. "Consumer Advocate" refers to the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs of the State of Hawaii.

[36] See "Division of Consumer Advocacy's Statement of Position," filed in Docket No. 2014-0135 on August 7, 2014, at p. 14.

8 Attachment

Attachment 1 – Amended Exhibit 9: Eligible Clean Energy Technologies

AMENDED EXHIBIT 9: ELIGIBLE CLEAN ENERGY TECHNOLOGIES

List of eligible clean energy technologies.

Eligible Technologies

- Solar Photovoltaic Systems including PV-Related Technologies
  - Advanced Inverters
  - Smart Modules
  - Monitoring Devices
  - Other Technologies that Support Solar Photovoltaic System Interconnection
  - Physical Infrastructure to Support Solar Photovoltaic Installations
- Energy Storage
- Utility Grid Modernization Technologies[1]
- Utility Renewable Integration Technologies[1]
- Commercial Energy Efficiency[1]
- Technologies that Incorporate a Water-Energy Nexus, Including Sewage and Waste Water Treatment[2]
- Heating, Ventilating, and Air Conditioning ("HVAC")[2]
- LED Systems[2]

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[1] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 46 and approved at p. 48.

[2] See "Decision and Order No. 32318," filed in Docket No. 2014-0135 on September 30, 2014, at p. 48

SERVICE LIST

Two copies of the foregoing letter Subject: Docket No. 2014-0135 GEMS Program Quarterly Report, together with this Certificate of Service have been served to the following and at the following addresses:

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