BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of
THE STATE OF HAWAII
DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT,
AND TOURISM

Docket No. 2014-0135

For an Order Approving the Green
Infrastructure Loan Program.

PROGRAM NOTIFICATION No. 11 FOR
THE GREEN INFRASTRUCTURE LOAN PROGRAM,
ATTACHMENT A
AND
CERTIFICATE OF SERVICE

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TO THE HONORABLE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII:

The Hawaii Green Infrastructure Authority of the State of Hawaii ("HGIA" or "Authority")\(^1\) submits this Program Notification through its Deputy Attorney General.

I. Background

In Decision and Order No. 32318, filed on September 30, 2014 in Docket No. 2014-0135 (the “Program Order”), the Hawaii Public Utilities Commission ("Commission") approved the "Application of the Department of Business, Economic Development, and Tourism for an Order Approving the Green Infrastructure Loan Program,” filed on June 6, 2014 ("Application") for the use of funds deposited in the Green Infrastructure Special Fund to establish and institute the Green Infrastructure Loan Program (“GEMS Program”), subject to the modifications described

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\(^{1}\) 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.
within the Program Order.\textsuperscript{2} Within the Application, a governance process was proposed for the GEMS Program that used mechanisms for updates or modifications from the approved GEMS Program guidelines. In this process, Program Notifications are used to provide additional details on GEMS Program components including \textit{project, program, financing, or other arrangements (clean energy technology, parties intended to benefit, loan program or other arrangements, and credit sources and funding); minimum lending, credit or investing criteria; and repayment mechanisms and processes}.\textsuperscript{3} The Application stated that the Department of Business, Economic Development, and Tourism ("DBEDT") or the Authority\textsuperscript{4} will use Program Notifications to report and certify information on implementation of key GEMS Program components that are within the scope of the Program Order parameters and exhibits issued by the Commission.\textsuperscript{5}

The Program Order approved the Program Notification process with a modification requiring that the Authority file any GEMS Program Notification with the Commission no less than fifteen (15) business days prior to implementation instead of the proposed ten (10) days stated in the Application.\textsuperscript{6}

The Division of Consumer Advocacy ("Consumer Advocate" or "CA") recommended that DBEDT submit market assessments and cost-benefit analyses for the financing of technologies related to solar PV that will mitigate grid saturation prior to DBEDT's submission of a Program Notification\textsuperscript{7} and the Commission then directed DBEDT "to provide the information identified

\textsuperscript{2} See Program Order, at 1.
\textsuperscript{3} Paraphrased from HRS §269-170 and 269-171, as referenced in Application, at 15 (emphasis added).
\textsuperscript{4} Prior to the Authority's establishment, DBEDT is authorized to exercise the Authority's powers and is required to effectuate the Authority's responsibilities (see HRS § 196-63). Accordingly, references to the "Authority" and "HGLA" in this Program Notification include DBEDT acting on behalf of the Authority, as explained in footnote 1 above.
\textsuperscript{5} Application, at 15.
\textsuperscript{6} See Program Order, at 84.
by the Consumer Advocate concerning market assessments and cost-benefit analyses for approved non-Solar PV clean energy technology with any Program Notification that is submitted to finance those technologies.\(^8\)

**II. Program Notification**

The purpose of this Program Notification is to provide additional information on the deployment of capital to the State of Hawaii, Department of Education ("DOE") for commercial energy efficiency ("EE") infrastructure as part of the DOE's Ka Hei energy and sustainability program ("Ka Hei"), which has developed shovel-ready EE initiatives including energy efficient LED lighting and other energy conservation measures, such as the optimization and control of existing equipment and facilities (i.e. refrigeration and ventilation systems, etc.).\(^9\) Commercial EE for the DOE, as part of the Ka Hei program, is consistent with the Annual Plan submitted to the Commission\(^10\) and Exhibit 9 of the Application as amended in the 2016 Annual Plan.\(^11\) Commercial EE was proposed as an eligible technology in DBEDT's Statement of Position\(^12\) and approved in the Program Order.\(^13\) Using GEMS capital for commercial EE is consistent with the core tenets of the GEMS Program since the use of GEMS funds for commercial EE will help to

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\(^8\) See Program Order, at 85.
\(^9\) Ka Hei is a comprehensive program, launched in 2014, involving all 256 public schools in the State of Hawaii. The program’s goals include not are not limited to achieving an estimated $24 million in operating expense savings over five years and reducing energy consumption by 25 percent over five years. See [Ka Hei](http://www.hawaiipublicschools.org/ConnectWithUs/Organization/SchoolFacilities/Pages/Ka-Hei.aspx); [Ka Hei FAQs](http://www.hawaiipublicschools.org/ConnectWithUs/Organization/SchoolFacilities/Pages/Ka-Hei-FAQs.aspx).
\(^11\) See Annual Plan at Attachment 1.
\(^13\) See Program Order, at 46.
remove financing market barriers in the current commercial EE financing market, broaden access to EE and reduce energy consumption and related costs.

To satisfy requirements for the financing of “approved non-Solar PV clean energy technology” stated above, the Authority is providing a market assessment for commercial EE financing and parameters around bill savings targets to serve as a cost-benefit analysis, consistent with the steps taken in the Application and Program Order to approve Solar PV as an eligible technology.

The Commission allows the Authority flexibility in allocating funds between customer types and does not restrict funding to the underserved\textsuperscript{14} so that the long-term viability of the GEMS Program is addressed.\textsuperscript{15} The Commission also did not oppose the Authority operating with flexibility in the finalization of details as long as sufficient oversight and reporting is established.\textsuperscript{16}

A. GEMS Commercial EE Loan Product

The Authority is requesting approval to provide financing for equipment to be purchased and installed by the DOE Ka Hei program through commercial EE contractors. Thoughtful and forward looking in its approval of Decision and Order 32318, the Commission did not limit GEMS program funding to only Solar PV systems as it did not believe it to be either prudent or useful to foreclose or otherwise limit the ability of the GEMS Program to fund any potential technology solutions that may provide significant benefits to ratepayers. Accordingly, the list of clean energy technologies on Exhibit 9 was amended to include, amongst other technologies,

commercial energy efficiency (LED systems, heating, ventilating, and air conditioning ("HVAC") and related systems).  

Commercial EE financed in the GEMS Program for the DOE will be a form of unleveraged debt with financing terms similar to that described in HRS § 36-41. Deployment of GEMS capital will be through a term loan for purposes consistent with the GEMS program, as specified in this Program Notification Attachment A, GEMS Commercial EE Loan Product for the DOE.

As with all GEMS loans and the GEMS portfolio, any commercial EE loan will be priced to ensure the costs and risks of lending are recovered while evidencing compliance with the parameters mentioned herein and in Attachment A. Additionally, this GEMS Commercial EE Loan product will be subject to the same reporting metrics as previous loan products.

The Authority assures the Commission that the underwriting guidelines for GEMS products are defined to protect GEMS participants and ratepayer capital. The Authority is responsible for the rapid deployment of bond proceeds in a way that assures repayment of GEMS funds. This requires GEMS products to be designed to competitively address financing gaps, while prudently accounting for credit risks. Ongoing flexibility will be necessary to allow for program adjustments based on product performance and continued evaluation of the GEMS Program.

B. Market Assessment

Market assessments will typically provide an organization with data to adequately assess the potential size of a [new] market to determine feasibility in investing time and resources to capture a portion of the market being assessed. For the purposes of this Program Notification,

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18 See “Hawaii Revised Statutes §36-41 Energy Retrofit and Performance Contracting for Public Facilities.”
this market assessment is agnostic to specific manufacturers or brands of energy conservation measures ("ECM") and instead attempts to analyze the market for ECM financing.

EnerNoc Utility Solutions Consulting Inc. prepared and presented the *State of Hawaii Energy Efficiency Potential Study*, Project #1448 (the "Study")¹⁹ to the Commission on January 15, 2014. The Study categorized Hawaii's 2012 energy consumption into five sectors: residential (32%), military (11%), water/wastewater (4%), street lighting (.5%) and commercial (52%). According to the Study, the commercial sector (which includes Government) consumes over half of statewide electricity use,²⁰ "[t]he majority of the statewide EE savings potential is found in the commercial sector,"²¹ and education accounts for 10% of the commercial sector.²²

Of the 25 State agencies participating in a DBEDT report to the Legislature, *Lead by Example State of Hawaii Agencies' Energy Initiatives FY 2013-2014*, the DOE is the second largest consumer of electricity, consuming over 135 million kWh per year from FY2005 through FY2014 at an average cost of $38 million per year.²³ There is a substantial market opportunity for commercial EE as the DOE has identified almost $60.0 million in EE retrofits. While the Authority is not contemplating financing 100% of the DOE EE projects, implementing high-impact commercial EE measures that result in a 25% reduction of electricity consumed by the DOE could result in estimated gross savings of over $9 million per year. This reduction in consumption, achieved by one of the largest consumers of electricity in the State, would significantly and positively contribute to the achievement of Hawaii's Energy Efficiency

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²⁰ See Study, Figure ES-2, at v.
²¹ See Study, Executive Summary, at xiii.
²² See Study, Figure ES-5, at vi.
Portfolio Standard ("EEPS") requirements\textsuperscript{24} and would also decrease the amount of generation required to achieve the State's Renewable Portfolio Standard ("RPS") target of 100% by 2045.\textsuperscript{25}

The DOE has a need for an alternative financing mechanism that allows for the timely implementation of commercial EE because it is tasked with "incorporating energy efficiency and conservation measures whenever possible."\textsuperscript{26} Thus, commercial EE projects at DOE locations served by the Hawaiian Electric Companies\textsuperscript{27} and financed through GEMS would creatively enable the DOE to meet its Board's sustainability directive while providing a tangible savings benefit. The Ka Hei program has demonstrated marked and measured success in deploying energy conservation and sustainability initiatives and has the capability to bring the appropriate resources and expertise to bear quickly. The Ka Hei program has a proven track record of experience and expertise to execute on the requirements of this project quickly as its energy efficient LED lighting and optimization initiatives are poised for implementation in 2017.

The DOE has three financing options available through conventional and traditional providers: (1) direct loan financing; (2) Energy Service Company Contracts / vendor finance; and (3) bond financing, all of which entail higher financing fees / costs, would likely be more expensive, less flexible and do not align with the current immediate needs of the DOE. While the Authority lacks access to detailed data about the specific terms of the rapidly evolving financing products that are available for commercial EE, particularly with respect to programs of this size, direct loan financing with a commercial bank will typically not allow for 100% financing and will require an aggressive amortization schedule, likely to significantly decrease

\textsuperscript{24} See HRS § 269-96.
\textsuperscript{25} See HRS § 269-92.
\textsuperscript{27} The Hawaiian Electric Companies include Hawaiian Electric Company, Inc., Maui Electric Company, Ltd., and Hawaii Electric Light Company, Inc.
the net anticipated savings from the lower kWh consumption. Contracting with an Energy Service Company (ESCO) that provides its own vendor financing will require the DOE to go through a lengthy procurement process to select an ESCO outside the Ka Hei program and unnecessarily delay implementation and increase the cost of capital as the ESCO will typically need to leverage its capital with debt to finance the upfront cost of the EE installations. The interest cost for a similar ESCO project appears to be approximately 6%.³⁸ Lastly, the issuance of a bond to finance EE installations will not only be a lengthy process but also expensive, with average bond issuance costs estimated to range from 1.07% to 2.31%²⁹ in addition to ongoing bond interest, audit and reporting expenses. The Authority also notes that the Federal Reserve Board has recently begun increasing the Federal Funds Rate, which is likely to increase the average cost of capital in the future. As such, the Authority concludes that there is a gap in the available conventional financing options for commercial EE infrastructure investments that currently meet the needs of the DOE's Ka Hei program, and providing GEMS financing will result in significant benefits to some 241 campuses located on the islands of Oahu, Maui, Molokai, Lanai, and Hawaii, while accelerating the achievement of the State's EEPS goals.

C. Cost-Benefit Analysis

According to Exhibit 13³⁰ in DBEDT's Application, the Authority requires a minimum savings net of financing costs for energy efficiency projects under the GEMS Program. As such,

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³⁸ See Auditor of the State of Hawaii, Audit of the Department of Transportation’s Energy Performance Contracts, Report No. 15-18, at 7, December 2015. This program involved financing for a $167.7 million lease and installation of EE equipment. While the precise financing terms program are unknown, the estimated cost of capital was determined based on the total loan principal shown in the report, the total interest paid on the loan, and the 15 year term described in the tables to calculate a cost of capital assuming a simple compounding interest loan structure.
³⁹ See Figure 1 in the “Doubly Bound, The Cost of Issuing Municipal Bonds” Research Brief published by the Haas Institute for a Fair and Inclusive Society at UC Berkeley and the ReFund America Project, December 2015.
the Authority will only lend on projects that can provide the ratepayer with a projected reduction
in annual electrical consumption (as measured in kWh/year) that meets this minimum savings
requirement.

The following is a representative example of one ECM that could be financed for the DOE
which assumes an ECM project cost of $19,140,000 and compares cost and time savings
between four financing options: 1) Commercial Banks; 2) ESCOs; 3) Bond Financing; and 4)
GEMS.

<table>
<thead>
<tr>
<th>Loan/Contract Term</th>
<th>Bank</th>
<th>ESCO-Financed</th>
<th>Bond</th>
<th>GEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin Implementation</td>
<td>3Q2017</td>
<td>4Q2017/1Q2018</td>
<td>1Q2018</td>
<td>1Q2017</td>
</tr>
<tr>
<td>Estimated kWh</td>
<td>14,387,000</td>
<td>14,387,000</td>
<td>14,387,000</td>
<td>14,387,000</td>
</tr>
<tr>
<td>Estimated $ Net</td>
<td>$673,897</td>
<td>$1,822,592</td>
<td>$1,991,071</td>
<td>$2,428,711</td>
</tr>
<tr>
<td>Year 1 Savings</td>
<td>7.17%</td>
<td>19.39%</td>
<td>21.18%</td>
<td>25.83%</td>
</tr>
</tbody>
</table>

GEMS financing not only provides the DOE with the highest estimated net savings, but it
also enables the DOE to implement its EE projects in a timely manner to reduce energy
consumption and start enjoying related savings during this current fiscal year.

Based on the current project scope, once the project is completed, it is anticipated to reduce
the DOE’s current annual energy consumption of approximately 135 million kWh by
approximately 34.7 million kWh, a reduction of approximately 25% in annual consumption. The
Authority conducted a sensitivity analysis to determine the effects of this reduction in
consumption. First, assuming an average price per kWh of $0.27 and an annual increase in
electricity rates of 2.9%, the Authority concludes that the project will potentially result in an
annual gross savings to the State of approximately $9.4 million over the span of 20 years, reflecting an internal rate of return ("IRR") that is greater than 19%.\textsuperscript{31} Assuming a more conservative average price per kWh of $0.255, and an annual increase in electricity rates of 1.1%, the Authority concludes that the project will potentially result in an annual gross savings to the State of approximately $8.8 million over the span of 20 years, reflecting an IRR that is greater than 16%.\textsuperscript{32}

Considering both the project benefits and the financing terms, based on the current project scope, the Authority anticipates initial annual net savings from commercial EE for the DOE, and thus for the State, of approximately $5.2 million. In the more conservative scenario with a slight decrease in scope, initial annual net savings is anticipated to be $4.6 million.

In addition to the financial savings, the Authority concludes that the use of GEMS Financing to support DOE’s commercial EE initiatives as part of the DOE’s Ka Hei program provides significant benefits toward achieving the State’s clean energy goals. The anticipated reduction in energy consumption for this project represents approximately 10% of the State’s EEPS target of reducing energy consumption by 4,300 GWh through 2030.\textsuperscript{33} The Authority concludes that the cost-benefit analysis supports the use of GEMS Program financing for DOE commercial EE.

\textbf{D. Alignment with GEMS Program}

Though government agencies were not named as underserved in the Application, the Commission-approved GEMS Program was not intended to be exclusively dedicated to

\textsuperscript{31} Estimated project costs, reduction in energy consumption, and other assumptions are based on estimates provided to the Authority from the DOE Ka Hei program.
\textsuperscript{32} Price per kWh is based on the recent invoices from the Hawaiian Electric Companies. Annual increase is a conservative estimate based on the lowest value of any plan on any island identified in the Hawaiian Electric Companies’ most recent Power Supply Improvement Plan (“PSIP”) Update, filed in Docket No. 2014-0183 on December 23, 2015.
\textsuperscript{33} HRS § 269-96(b). The 10% figure is based on an estimated 433.75 GWh reduction in consumption through 2030 calculated as 34.7 GWh annual reduction in consumption for 12.5 years beginning in 2017.
underserved customers\textsuperscript{34} and allowed the Authority flexibility in allocating funds between customer types\textsuperscript{35} in order to ensure that the long-term viability of the GEMS Program is addressed.\textsuperscript{36} This is consistent with the Legislature’s finding that green infrastructure financing program should utilize “excess loan program funds as a funding source to finance additional green infrastructure installations, subject to regulatory guidelines and approval.”\textsuperscript{37} The Commission also did not oppose the Authority operating with flexibility in the finalization of details as long as sufficient oversight and reporting is established.\textsuperscript{38}

The Authority notes that state agencies constitute a significant component of energy consumption in Hawaii and that investment in renewable energy infrastructure and efficiency improvements by government agencies has been limited. Additionally, the Authority notes that government agencies are among those ratepayers who are hard to reach with traditional market-competitive financing agreements due to procurement limitations and the obligation to include contractual provisions which make the continuation of contracts contingent upon the allocation of funds. For these reasons, the use of GEMS Program funds to provide low-cost financing agreements to enable commercial EE investment fills a gap not served by the capital market.

The Authority does not intend to add government agencies, generally, to the critical underserved groups as identified in the Application\textsuperscript{39} through this notification, as this notification serves to provide information about the GEMS Program as approved. The Authority notes however that the Program Order does not restrict the GEMS Program from providing government agencies access to eligible clean energy technologies in its approval. Further, the

\textsuperscript{34} Program Order, at 55.
\textsuperscript{35} The Application named underserved homeowners, renters and non-profit customers as the underserved market. See Application, at 3.
\textsuperscript{36} See Program Order, at 55.
\textsuperscript{37} Act 211, Session Laws of Hawaii 2013 ("Act 211") § 1.
\textsuperscript{38} See Program Order, at 76.
\textsuperscript{39} See Application, Ex. 6 (as referenced by Program Order, at 8).
Authority notes that the Commission found that "the GEMS Program will provide both direct and indirect benefits to a range of individuals and organizations."\textsuperscript{40}

These indirect benefits will flow to Hawaii residents, who are also ratepayers when GEMS Program funds are made available to the DOE's Ka Hei program. First, of the DOE's 242 public schools on the islands of Oahu, Maui, Molokai, Lanai, and Hawaii, which are currently served by the Hawaiian Electric Companies, 153 schools, or approximately 63.2 percent, qualify as federal Title 1 schools.\textsuperscript{41} 42 According to the DOE, overall, 52% of all public school students qualify for Title 1 benefits. Thus, many of the children who are the ultimate beneficiaries of investment in Hawaii's schools come from low-income families and many more are from low- to moderate-income families. Reductions in energy consumption and lowering the kW load may enable classrooms earmarked for the "Cool the Schools" initiative to install air conditioners without requiring expensive and time consuming electrical upgrades providing a better learning environment for the students in a timelier manner. Additionally, reductions in energy expenses for these schools increase the availability of State funds for other investments in education or related programs.

In addition, the savings accrued and the improvements made will have a significant societal benefit to students, teachers, and taxpayers, because the Ka Hei program not only implements the DOE's sustainability goals but also provides opportunities for energy education for teachers and students as well as local energy efficiency job opportunities. Ratepayers will also receive

\textsuperscript{40} See Program Order, at 55.
\textsuperscript{41} According to the U.S. Department of Education, Title 1 is the nation's oldest and largest program providing assistance for students at risk of failure and living at or near poverty. The basic principles of Title 1 state that schools with large concentrations of low-income students will receive supplemental funds to assist in meeting students' educational goals. Low-income students are determined by the number of students enrolled in the free and reduced lunch program. For an entire school to qualify for Title 1 funds, at least 40% of students must enroll in the free and reduced lunch program.
\textsuperscript{42} See DOE, Title I Schools for SY 2016-17, dated October 5, 2015, available at https://www.hawaiipublicschools.org/DOE%20Forms/TitleI2016-17.pdf.
benefits because this project is “shovel ready,” and interest earned will contribute significantly to GEMS program expenses. The Authority will also coordinate with Hawaii Energy, the Public Benefits Fund Administrator, to ensure that resources are allocated efficiently in the pursuit of commercial EE projects.43

III. Subsequent Authority Action

Unless informed otherwise by the Commission, upon completion of the fifteen (15) business day-term of Program Notification, HGIA may implement the deployment of capital to finance commercial energy efficiency to the DOE for its Ka Hei program. Any subsequent changes to the details described herein will be proposed through the GEMS Annual Plan.

Submitted this 31st day of January, 2017, in Honolulu, Hawaii

Gregg J. Kinkle
Deputy Attorney General for the Authority

43 The Public Benefits Fund (PBF) surcharge is assessed on residential and commercial customers of the Hawaiian Electric Companies. The residential customer class includes Rate Schedules R, TOU-R, TOU EV, and EV-R. The commercial customer class includes Rate Schedules G, J, DS, P, F, U, TOU-G. TOU-J-SS, EV-C. The underlying goal of the PBF is to procure electric energy savings from efficiency programs at a cost lower than that of avoided generation. Revenues collected from the Public Benefit Fund surcharge pay for the costs of the energy efficiency programs managed by the third-party administrator. Collection strategy results in a split based on revenue contributions by customer class: 45% Residential and 55% Commercial. The Hawaii Energy Program maintains incentive portfolios for both residential and commercial customer classes. Customer eligibility is differentiated by the type of electric service a customer receives. As such, government agencies that are commercial utility customers fall under the PBF commercial customer class and are eligible to take advantage of Hawaii Energy commercial incentive programs.
ATTACHMENT A:  GEMS COMMERCIAL EE LOAN PRODUCT FOR THE DOE

Objective  To expand access and affordability of energy efficiency retrofits for the Department of Education.

Eligible Technology  Lighting (LED), Controls and Monitoring Devices, Mechanical Upgrades, and other Commercial EE.

Allowable Uses  Financing is available for up to 100% of the cost of the energy improvements.

Other financeable cost may include: financing cost; required electrical upgrades to conform to building permits; electrical permits; and other hard cost and structural improvements.

Term  Up to twenty (20) years.

Eligible EE Installers  GEMS will conduct due diligence on a case by case basis.

Interest Rate  Cost of GEMS capital plus margin to recover appropriate program administrative costs.

Loan Amount  Minimum loan amount of $1,000,000 as established by GEMS.

Borrower  Department of Education for locations served by Hawaiian Electric Company or its affiliates.

Credit Criteria  GEMS program underwriting guidelines

Savings  Savings required per Exhibit 13.
CERTIFICATE OF SERVICE

I hereby certify that I have this date, in addition to filing an original and three copies with the Commission, served one (1) or two (2) copies of the foregoing GEMS Program Notification, together with this Certificate of Service, by making personal service (P) or service by electronic mail (M), to the following and at the following addresses:

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HAWAII GREEN INFRASTRUCTURE AUTHORITY

[Signature]
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