JOSH GREEN, M.D.
GOVERNOR

KEITH T. HAYASHI
SUPERINTENDENT

STATE OF HAWAIʻI
DEPARTMENT OF EDUCATION
KA ʻOIHANA HOʻONAʻAUAO
P.O. BOX 2360
HONOLULU, HAWAIʻI 96804

OFFICE OF THE DEPUTY SUPERINTENDENT

January 6, 2025

The Honorable Ronald D. Kouchi, President
and Members of the Senate
415 South Beretania Street
State Capitol, Room 409
Honolulu, Hawaiʻi 96813

The Honorable Nadine K. Nakamura, Speaker
and Members of the House of Representatives
415 South Beretania Street
State Capitol, Room 431
Honolulu, Hawaiʻi 96813

Re: Hawaiʻi State Department of Education Annual Report on Sustainable Schools Initiative

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

For your information and consideration, a copy of the annual Sustainable Schools Initiative report is being transmitted, pursuant to Section 302A-1510, Hawaiʻi Revised Statutes (HRS). In accordance with Section 93-16, HRS, the report may be viewed electronically at: *https://www.hawaiipublicschools.org/VisionForSuccess/SchoolDataAndReports/StateReports/Pages/Legislative-reports.aspx*

Should you have any questions, please contact Ken Kakesako, Director of the Policy, Innovation, Planning and Evaluation Branch, Office of Strategy, Innovation and Performance, via email at ken.kakesako@k12.hi.us or by phone at (808) 282-3430.

Sincerely,

Tammi Oyadomari-Chun
Deputy Superintendent of Strategy

TOC:at
Attachment

c: Legislative Reference Bureau
Hawaiʻi State Public Library System
University of Hawaiʻi
Office of Facilities and Operations

State of Hawai‘i
Department of Education

Annual Report on Sustainable Schools Initiative

January 2025

Section 302A-1510, Hawai‘i Revised Statutes (HRS), requires the Hawai‘i State Department of Education (Department) to annually report on the following: 1) The overall progress toward the net-zero energy goal set forth in Section 302A-1510(a), HRS; 2) Its plans and recommendations to advance the net-zero goal set forth in Section 302A-1510(a), HRS; 3) Different types of cooling measures implemented; and 4) Any challenges or barriers encountered or anticipated by the Department in meeting the net-zero energy goal set forth in Section 302A-1510(a), HRS.

Annual Report on the Hawai‘i State Department of Education’s Sustainable Schools Initiative 2025

1) OVERALL PROGRESS TOWARD THE NET-ZERO ENERGY GOAL BY JANUARY 1, 2035 SET FORTH IN SECTION 302A-1510(a), HRS:

Hawai‘i School Facilities Energy Report Comparison of Fiscal Year (FY) 2023 and FY 2024				
	FY 2023		FY 2024	
School Facilities Energy	MWh [2]	$M	MWh	$M
Utility Energy [1]	112,108	$50.4	113,727	$47.9
Renewable Energy	21,924	$5.3	20,560	$5.1
Total Energy	**134,032**	**$55.7**	**134,287**	**$53.0**

1. Utility Energy includes Hawaiian Electric Company, Hawai‘i Electric Light Company, Kaua‘i Island Utility Cooperative, and Maui Electric Company.
2. MWh = megawatt-hour

The year-over-year (YOY) percentage changes and the percent of total energy are provided in the table below:

	YOY Change		Share of Total Energy	
School Facilities Energy	MWh	$	FY 2023	FY 2024
Utility Energy [1]	1%	-5%	84%	85%
Renewable Energy	-6%	-5%	16%	15%
Total Energy	**0%**	**-5%**	**100%**	**100%**

Note: Figures in the table are rounded to the nearest percent

For the full FY 2024, total electricity consumption across all public campuses statewide was unchanged from FY 2023. The total cost of electricity decreased by 5%.

The YOY utility electricity consumption increased by 1%. The YOY cost of utility electricity decreased 5% due to a 1% increase in consumption versus a 6% decrease in utility rates. The average cost of utility electricity for FY 2024 was $0.4213 per kilowatt-hour (kWh) compared to $0.4494 in FY 2023, a decrease of 6%.

The YOY renewable electricity consumption across all public campuses statewide was down 6% from FY 2023. Although the average contractual rates paid to power purchase agreement providers increased by 1%, the annual cost of renewable electricity was lower by 5% due to a 6% decrease in production.

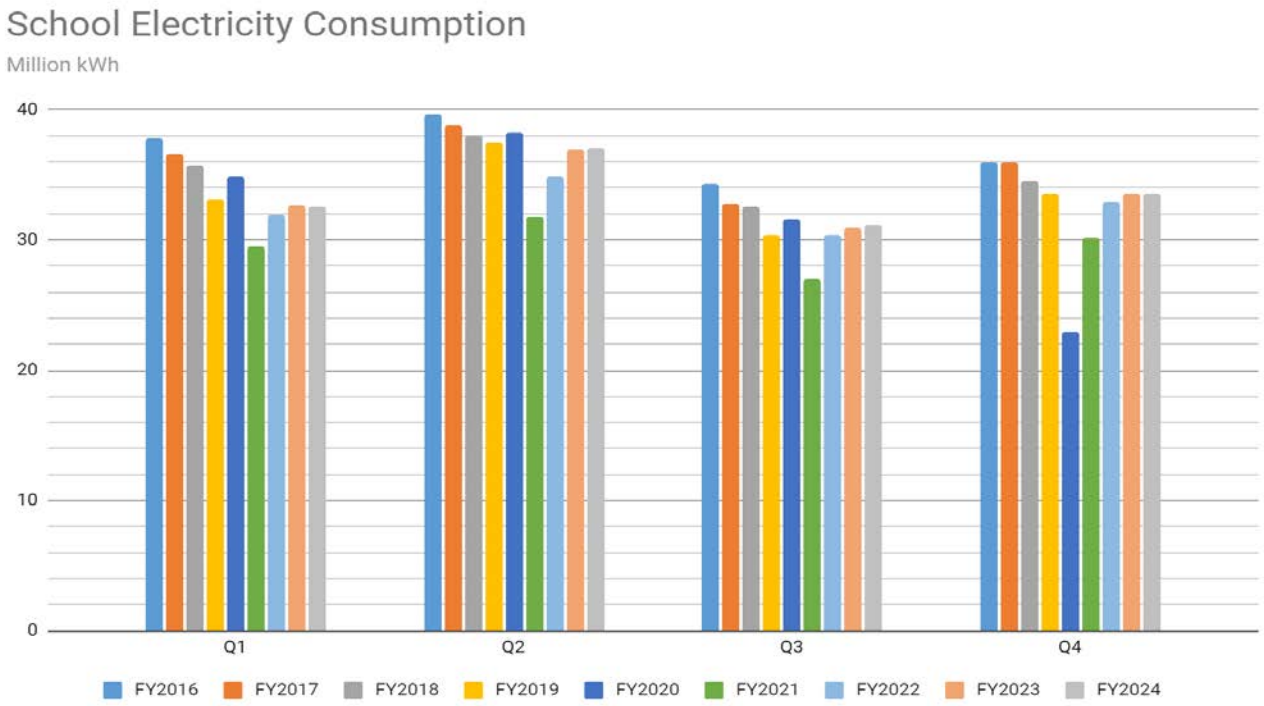


Figure 1 - Total Electricity Consumption by FQ

The overall consumption in FY 2024 was level with FY 2023. On a YOY basis, the consumption in all quarters of FY 2024 was level with FY 2023.

2) PLANS AND RECOMMENDATION TO ADVANCE THE NET-ZERO ENERGY GOAL SET FORTH IN SECTION 302A-1510(a), HRS:

Recent negotiations for onsite solar photovoltaic (PV) electricity average $0.27839 per kWh. Although this is 30% higher than previous PV solar installed at Hawaii schools, it is still at a discount from even the lowest expected cost of utility electricity.

On a historical basis, although the consumption of utility electricity has declined by 3.3 million kWh per year since FY 2016, the cost of that electricity has actually increased by $1.4 million a year. This is because the rate paid for utility electricity has, on average, gone up faster than the reduction in consumption. On average, the utility electricity rate has gone up $0.021 per kWh per year. By comparison, the solar PV electricity rate has only increased to $0.0041 per kWh per year.

The reduction in utility consumption has resulted from both increasing solar PV consumption and overall electricity conservation and energy efficiency measures. Increased solar PV consumption amounted to approximately 1.3 million kWh per year, and conservation and energy efficiency amounted to approximately 2.0 million kWh per year.

School Facilities Historical Data						
	Grid		Onsite		Total	
FISCAL YEAR	Grid Cost	Grid kWh	Onsite Cost	Onsite kWh	Total Cost	Total kWh
FY 2016	$37,391,894	140,234,958	$1,611,222	7,364,016	$39,003,116	147,598,974
FY 2017	$35,715,757	130,744,891	$2,907,605	13,383,389	$38,623,362	144,128,280
FY 2018	$35,146,479	118,154,761	$4,887,709	22,658,876	$40,034,187	140,813,637
FY 2019	$37,303,479	111,196,400	$5,260,160	23,487,709	$42,602,146	134,684,109
FY 2020	$34,243,442	103,845,177	$5,502,586	23,903,943	$39,723,760	127,647,855
FY 2021	$29,131,848	95,080,156	$5,529,904	23,424,982	$34,661,751	118,505,138
FY 2022	$39,581,971	107,580,693	$5,423,424	22,479,425	$45,005,388	130,060,118
FY 2023	$50,378,123	112,107,710	$5,323,051	21,923,915	$55,701,170	134,031,625
FY 2024	$47,938,241	113,727,098	$5,054,603	20,559,628	$53,017,098	134,286,726
Annual Change	**$1,447,864**	**- 3,320,123**	**$372,684**	**1,299,707**	**$1,821,523**	**- 2,020,416**

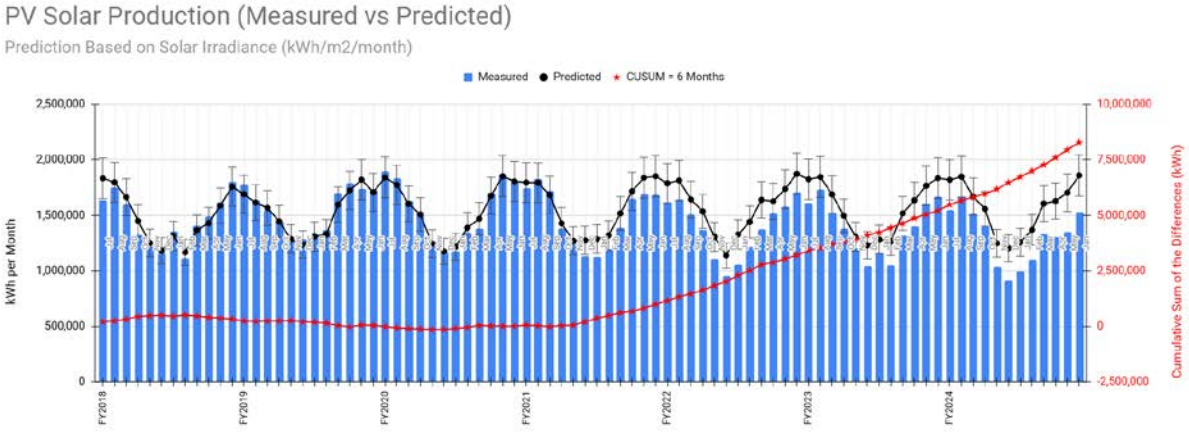
Based on this historical performance, the Hawai‘i State Department of Education (Department) developed a schedule by which the Sustainable Schools Initiative may be accomplished by January 1, 2035.

Sustainable Schools Initiative Facilities Plan (FY 2025 - 2034)						
	Energy Efficiency & Conservation			Renewable Energy		
Plan FY	EE&C kWh	Utility Rate $/kWh	EE&C Total $	RE kWh	RE $/kWh/Year	RE Annual $
2025	2,020,416	$ 0.4425	$ 7,152,592	5,077,059	$ 0.2839	$ 1,441,627
2026	**2,020,416**	**$ 0.4635**	**$ 7,492,018**	**9,827,320**	**$ 0.2879**	**$ 2,829,602**
2027	**2,020,416**	**$ 0.4845**	**$ 7,831,444**	**9,827,320**	**$ 0.2920**	**$ 2,869,293**
2028	**2,020,416**	**$ 0.5055**	**$ 8,170,870**	**9,827,320**	**$ 0.2961**	**$ 2,909,541**
2029	**2,020,416**	**$ 0.5265**	**$ 8,510,296**	**9,827,320**	**$ 0.3002**	**$ 2,950,353**
2030	**2,020,416**	**$ 0.5475**	**$ 8,849,722**	**9,827,320**	**$ 0.3044**	**$ 2,991,738**
2031	**2,020,416**	**$ 0.5685**	**$ 9,189,148**	**9,827,320**	**$ 0.3087**	**$ 3,033,703**
2032	**2,020,416**	**$ 0.5895**	**$ 9,528,574**	**9,827,320**	**$ 0.3130**	**$ 3,076,257**
2033	**2,020,416**	**$ 0.6105**	**$ 9,868,000**	**9,827,320**	**$ 0.3174**	**$ 3,119,408**
2034	**2,020,416**	**$ 0.6315**	**$ 10,207,426**	**9,827,320**	**$ 0.3219**	**$ 3,163,164**
2026 - 2034 RE Target				88,445,878		
2025 - 2034 Totals	20,204,161		$ 86,800,090	93,522,937		$ 28,384,686
Notes	1. FY 2024 Utility Consumption = 113,727,098 kWh					
	2. FY 2025-2034 EE&C kWh = 20,204,161 kWh					
	3. FY 2025 Contracted RE = 5,077,059 kWh					
	4. FY 2026-2034 RE Target = 113,727,098 - 20,204,161 - 5,077,059 = 88,445,878					
	5. EE&C total costs are estimated assuming a payback of **8 years** based on the first year utility energy cost savings.					

3) CHALLENGES OR BARRIERS ENCOUNTERED OR ANTICIPATED IN MEETING THE NET-ZERO ENERGY GOAL SET FORTH IN SECTION 302A-1510(a), HRS:

An issue has developed with existing solar PV production that may seriously affect the life of these systems and, potentially, the life of future systems. Based simply on annual production records, there has been a noticeable drop off in electricity production since FY 2020. This drop off amounts to 14% or an average of 3.5% a year. This is seven times higher than solar industry standards.

Based on a model of solar production as a function of solar irradiance, since FY 2020, cumulative solar energy production has been 8.3 million kWh lower than expected. This is the equivalent of approximately six months of production over four years. Since utility electricity costs are approximately $0.20 per kWh more than solar electricity costs, the lower solar production has cost the Department $1.7 million over the last four fiscal years. And there are indications that the deterioration may be increasing.



It is quite possible that there is no single cause of the problem. There may be various factors at work, factoring in the age and provenance of each system. Depending on the outcome of our investigations, the Department may require future PV solar systems to be constructed and maintained to stricter standards.

4) IMPLEMENTATION OF MEASURES TO COOL PUBLIC SCHOOL CLASSROOMS SET FORTH IN SECTION 302A-1510(e), HRS:

School Directed Air Conditioning Program (SDAC) Update

The first phase of the SDAC installed approximately 4,000 window air conditioning units in approximately 2,000 classrooms. In the most recent phase, for FY 2022-2023, 766 classrooms were renovated at an overall cost of $5,876,589. This represents an estimated average cost of $7,672 per classroom.

Over FY 2023-2024, funds for adding air conditioning through the SDAC program were unavailable. Therefore, the program was not extended to another phase.

It is estimated that, based on the results of the latest phase of the SDAC, there are approximately 2,400 plus classrooms that still require air conditioning. Based on an average cost of $8,000 per classroom, the current estimated cost for this work is $20,000,000.

The Department has not determined the impact of the SDAC program on school electrical loads due to the wide range, variability, and impact of school climatic conditions.