APPENDIX A: ENERGY COMMISSION - PROPOSITION 39: CALIFORNIA CLEAN ENERGY JOBS ACT, K-12 PROGRAM AND ENERGY CONSERVATION ASSISTANCE ACT 2019-20 PROGRESS REPORT

CALIFORNIA ENERGY COMMISSION

CALIFORNIA NATURAL RESOURCES AGENCY

California Energy Commission

STAFF REPORT

Proposition 39: California Clean Energy Jobs Act, K-12 Program and Energy Conservation Assistance Act Program-Education Subaccount, School Bus Replacement Program

2020-21 Progress Report

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ABSTRACT

The California Clean Energy Jobs Act was created with the approval of Proposition 39 on November 12, 2012. Under this initiative, the Proposition 39 K-12 Program provided funding for energy efficiency retrofits and clean energy generation at school buildings within a local educational agency to increase energy use savings and energy cost savings. The California Energy Commission prepared this report for the Citizens Oversight Board in accordance with Senate Bill 73 (Committee on Budget and Fiscal Review, Chapter 29, Statutes of 2013). To alleviate the burden to local educational agencies, information required to be reported to the Citizens Oversight Board by local educational agencies is contained within this report. This is the last annual report required to be prepared for the Citizens Oversight Board and summarizes results from the start of the Proposition 39 K-12 Program (December 19, 2013) through the end of Fiscal Year 2020-21.

Due to negative effects of COVID-19 on the completion of energy projects, the California Energy Commission extended the deadline for project completion and final project reporting by one year to June 30, 2021, and September 30, 2022, respectively. By the end of Fiscal Year 2020-2021, the California Energy Commission approved a total of 2,095 energy expenditure plans from 1,727 local educational agencies, representing **$1.52 billion** in project funding. Of these energy expenditure plans: 1,504 projects (72%) are completed, and the completed project final reports approved; 64 projects (3%) are completed and under review; 173 projects (8%) are completed, with local educational agencies in the process of collecting 12 months of post-installation energy consumption data; 89 projects (4%) have not submitted a completion date; and 265 (13%) completed project final reports are overdue. California Energy Commission staff are developing a plan to provide a more complete accounting of program results following the receipt of the remaining final reports in September of 2022.

The cumulative results of completed Proposition 39 K-12 projects reported to the California Energy Commission from program inception through Fiscal Year 2021-2021 includes: a Savings to Investment Ratio of 1.30, indicating that for every $1.00 invested, $1.30 in energy costs is saved; energy-use intensity decreased on average from 91.24 British thermal units per square foot before energy project installation to 79.76 British thermal units per square foot after energy project installation, resulting in energy use savings with an associated projected annual energy cost savings of $66.3 million.

This report also summarizes the status of the Energy Conservation Assistance Act — Education Subaccount Program, the Bright Schools Program, and the School Bus Replacement Program. For Fiscal Years 2013–14 through 2020-21, the California Energy Commission approved 60 Energy Conservation Assistance Act — Education Subaccount Program loans totaling $82.1 million. During the same period, the Bright Schools Program provided $3.3 million in technical assistance to 173 local educational agencies and community colleges. The School Bus Replacement Program awarded $75.1 million for 236 electric buses and $14.2 million for 76 electric bus chargers and expects to fund 236 chargers by the end of the program.

Keywords: Proposition 39, California Clean Energy Jobs Act, Job Creation Fund, Senate Bill 73, Citizens Oversight Board, energy efficiency, clean energy, conservation, school, local educational agency, financing, technical assistance

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EXECUTIVE SUMMARY

Background and Purpose

The California Clean Energy Jobs Act was created with the approval of Proposition 39 in the November 6, 2012, statewide general election. Proposition 39 added Division 16.3 (commencing with Section 26200) to the Public Resources Code, added Sections 25136, 25136.1, and 25128.7 to the Revenue and Taxation Code, and amended Sections 23101, 25128, 25128.5, and 25136 of the Revenue and Taxation Code. The statute changed the corporate income tax code and allocated projected revenue to the General Fund and the Clean Energy Job Creation Fund (Job Creation Fund) for five fiscal years, beginning with fiscal year 2013-14. Under the initiative, up to $550 million annually was available to be appropriated by the Legislature for eligible projects to improve energy efficiency and expand clean energy generation.

Enabling legislation (Senate Bill 73, Committee on Budget and Fiscal Review, Chapter 29, Statues of 2013) (SB 73) added additional provisions to implement Proposition 39 and contained an initial appropriation for the 2013-2014 fiscal year and ending with the 2017-2018 fiscal year. The California Energy Commission (CEC) administers four components of the California Clean Energy Jobs Act: The Proposition 39 - California Clean Energy Jobs Act, K-12 Program; Energy Conservation Assistance Act – Education Subaccount Program; the Bright Schools Program; and the School Bus Replacement Program (a school bus retrofit and replacement program).

SB 73 also established a Citizens Oversight Board to, in part: annually review expenditures from the Job Creation Fund, commission and review an annual independent audit of the Job Creation Fund, publish a complete accounting of all expenditures each year, and submit an evaluation of the program to the Legislature. Public Resources Code Section 26240(d) requires, in part, that the *Energy Commission prepare an annual summary of expenditures, energy savings, the effective cost of saved energy or return on investment, and employment effects of each year's completed projects, and provide this report to the Citizens Oversight Board*.

This is the CEC's final progress report to the Citizens Oversight Board as the Proposition 39: California Clean Energy Jobs Act, K-12 Program has expired. This report will include Proposition 39: California Clean Energy Jobs Act, K-12 project data reported by the local educational agencies (LEAs) for the 2020-2021 fiscal year plus provide cumulative data reported by the LEAs from the initial SB 73 appropriation in fiscal year 2013-14 to June 30, 2021. For the purpose of this report, references to the Fiscal Year 2020-21 reporting period or cumulative data through June 30, 2021, reflect data compiled on November 15, 2021.

Proposition 39; K-12 Program

Due to effects of COVID-19, the deadline for project completion was extended from June 30, 2020, to June 30, 2021, and the deadline for final project completion reports from September 30, 2021, to September 30, 2022. This report provides data collected from LEAs submitting completed project final reports representing 1,504 projects from program inception to the reporting period ending June 30, 2021. Objectives for the Proposition 39 K-12 Program, as

noted in program implementation legislation SB 73, included savings gained from investment from the Clean Energy Job Creation Funds (Savings to Investment), energy use savings (Energy-Use Intensity) and the resulting energy cost savings.

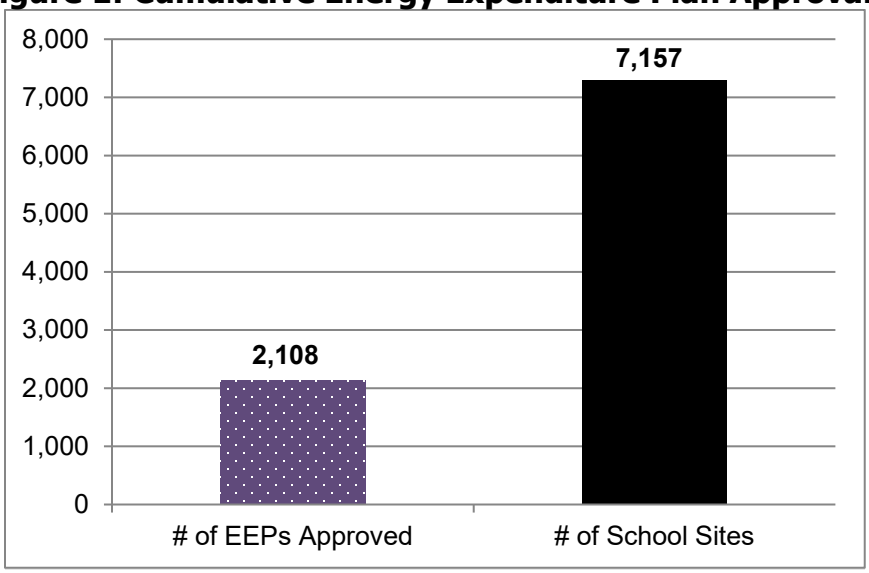
The financial savings from more efficient buildings provide schools with the flexibility to pay for other upgrades and programs that enhance student learning. Progress made towards achieving these legislative objectives for the Proposition 39; Clean Energy Jobs Act K-12 Program is noted in 1,504 completed projects, representing approximately 58% of program funding, reporting results from program inception through the reporting period ending Fiscal Year 2021-2021; Savings to Investment Ratio is 1.30, for every $1.00 invested $1.30 in energy costs is saved; energy-use intensity decreased on average from 91.24 British thermal units (BTUs) per square foot before energy project installation to 79.76 BTUs per square foot after energy project installation, resulting in energy use savings with an associated cumulative energy cost savings of $66.3 million annually.

Cumulative Data: December 2013 Through June 30, 2021

The CEC approved the first Energy Expenditure Plans (EEPs) in Fiscal Year 2013-14, resulting in approximately $19 million approved for disbursement by the California Department of Education to eligible LEAs. At the height of the program, $1.704 billion in Proposition 39 funding had been approved — $154.6 million for energy planning and $1.53 billion for energy projects. The cost of approved EEPs could be higher than the program appropriations, but if an LEA had EEPs totaling more than their allocation they would only receive funds up to their allocation leveraging other financing for project completion. Funding changes occurring after this period were a result of EEP amendments, closure of LEAs, cancellation of EEPs, and other adjustments to existing funding. One result of these adjustments is some of the previously reported data related to the number of approved EEPs, the number of affected school sites, and funding amounts have decreased.

At the program peak, in 2018, 1,739 LEAs received approval for 2,108 EEPs, benefiting 7,157 sites in approved EEPs. **Figure 1** illustrates the maximum cumulative EEP approvals.

Figure 1: Cumulative Energy Expenditure Plan Approvals



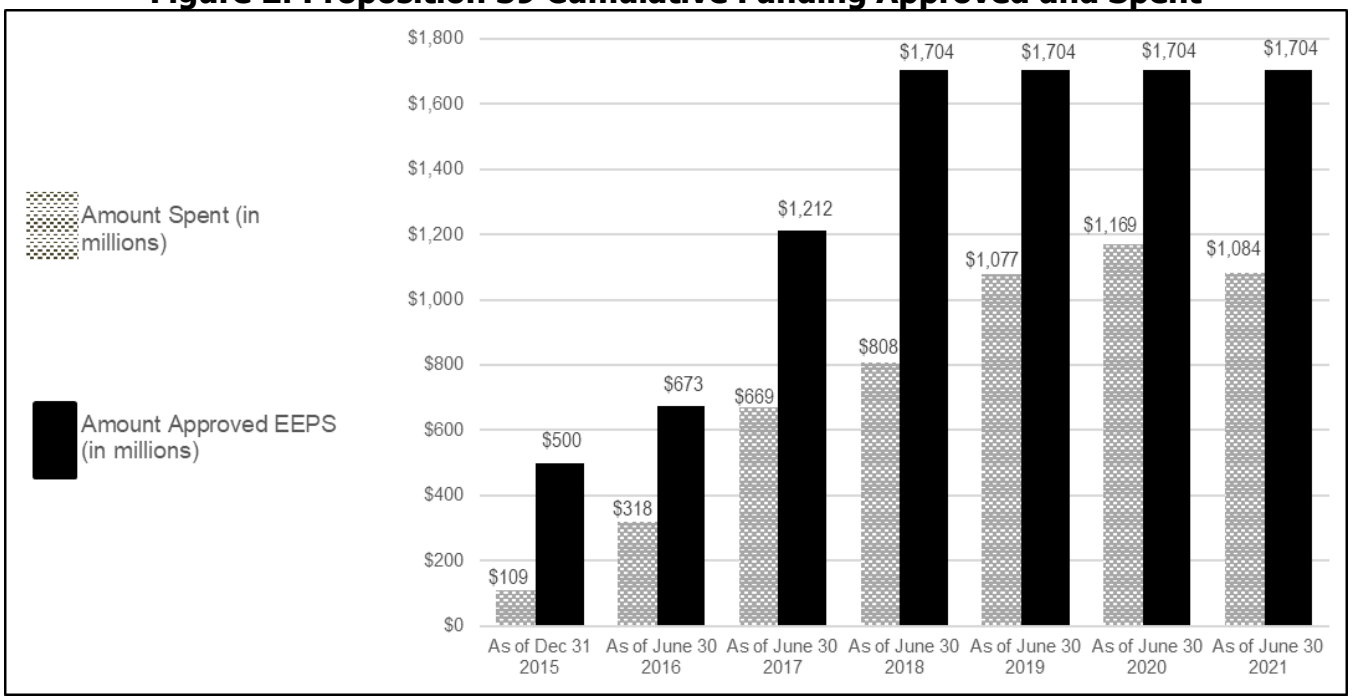
Source: California Energy Commission

Cumulatively through the Fiscal Year 2020-21 reporting period, LEAs statewide reported spending $1.1 billion of the $1.704 billion, or 65%, in total Proposition 39-K-12 funds disbursed by the California Department of Education (CDE) for CEC approved EEPs.

To provide relief to the unforeseen effect of COVID-19, the *Proposition 39: California Clean Energy Jobs Act – 2020 Program Implementation Guideline*s, extended the deadline for project completion from June 30, 2020, to June 30, 2021, and project reporting deadline to submit completed project final reports to the CEC from June 30, 2021, to September 30, 2022.

Figure 2 presents the total funding approved and reported as spent from reports submitted by LEAs as of November 15, 2021. This data is based on information in approved annual and final reports received in the current reporting period and does not capture spending from any outstanding reports. The reduction in reported cumulative Proposition 39 K-12 funding spent of $1.084 billion through the current reporting period declined relative to the previous year due to a significant increase in outstanding (not reported to the CEC as of November 15, 2021) annual and final reports. The sum of funding from outstanding reports totals $278.3 million, bringing the cumulative amount spent closer to $1.358 billion. As more final reports are submitted and approved by the CEC, the reported funding spent will rise. However, CEC staff anticipate the total amount spent will remain lower than $1.704 billion funded because some LEAs will report that their projects were completed under budget and some LEAs will amend or cancel EEPs to reflect measures not installed reducing the total funds spent.

Figure 2: Proposition 39 Cumulative Funding Approved and Spent



Source: California Energy Commission

Spending Summary

LEAs completed their approved energy projects as reported in 1,677 EEPs. Completed project final reports must include 12 months of post-installation energy consumption data and are due to the CEC no later than 15 months after project completion. The CEC has approved the 1,504 completed project final reports received from LEAs. These reports documented LEA's spending a total of $1.046 billion on projects, including LEA leveraged funding. An additional 173 EEPs have completed energy project installations and are currently collecting 12 months of post-installation energy usage data. The preliminary total amount spent for these EEPs is $213 million, and the total project spending for all completed EEPs, including leveraged funding, is estimated to be $1.259 billion. This value will change as LEAs submit final reports or amend and cancel EEPs. **Table 1** summarizes Proposition 39 K–12 Program spending from EEPs where projects are completed.

Table 1: Proposition 39 K-12 Cumulative Spending - 20/21 Fiscal Year

Energy Expenditure Plan (EEP) Status	Number of EEPs With Reports	Prop 39 Funds Spent *(in millions)*	Total Amount Spent *(in millions)*
EEPs With Approved Completed Project Final Reports	1504	$892	$1,046
EEPs Completed as of June 30, 2021 and Collecting 12 Months of Utility Data	173	$192	$213
Totals	**1,677**	**$1,084**	**$1,259**

Source: California Energy Commission

Participation Summary

The CDE reported 2,189 eligible LEAs, falling into four categories: public school districts, charter schools, state special schools, and county offices of education. State special schools provide technical assistance, educational programs, and services to students who are blind, visually impaired, deaf, and hard of hearing. Of these 2,189 eligible LEAs, 1,739 LEAs submitted at least one EEP.

Identifying Energy Savings

LEAs are required to report 12 months of post installation energy savings after project completion. The CEC allows the use of several methods (see *Proposition 39: California Clean Energy Jobs Act Guidelines*) to determine and report energy savings after completion of an energy project. The data provided in 1,504 approved completion final project report, demonstrated an annual energy savings of 341,570 megawatt-hours and 1,090,495 therms resulting in approximately $66.3 million in annual energy cost savings and reduced greenhouse gas emissions of approximately 117,897 tons of carbon dioxide equivalent annually. These savings are based on the data from 1,504 complete project final reports, representing approximately 58% of the Proposition 39 K-12 funding. The annual program benefits are expected to increase as data from the remaining completed project final reports is received by the CEC through September 30, 2022.

The Proposition 39 K-12 guidelines require that each EEP have a savings-to-investment ratio of 1.01 or greater, meaning that for every $1.00 invested, a minimum of $1.01 must be saved over the life of the energy project. CEC staff analysis concluded the combined savings-to-investment ratio for the 1,504 completed projects, as reported in LEA submitted completed projects final reports, is 1.30; that is, for every $1.00 invested in these projects, an estimated $1.30 will be saved over the expected useful life of the installed energy technologies.

Energy-use intensity, the metric used to measure the energy performance at a school site, **decreased** among the school sites included in completed project final report submitted to the CEC. LEAs reported, on average, 91.24 British thermal units (BTU) were required per square foot **before** energy project installation and **dropped** to 79.76 BTUs per square foot, or a 13

percent decrease in energy use, after energy project installation, resulting in energy efficiency gains, resulting in energy use savings and energy cost savings.

Energy Conservation Assistance Act — Education Subaccount

In Fiscal Years 2013–14 and 2014–15, $56 million in job creation funds were allocated to the Energy Conservation Assistance Act — Education Subaccount (ECAA-Ed) to fund loans and technical assistance projects. Of the $56 million, $50.5 million was allocated to finance zero percent loans to K–12 local educational agencies for energy efficiency, demand reduction, and clean energy generation projects. The remaining $5.5 million was allocated to the Bright Schools Program for technical assistance to the same eligible entities. Additional funding of $38.5 million was appropriated in Fiscal Year 2019-2020.

As of June 30, 2021, the CEC approved 60 loan applications, totaling $82.1 million with four approved loans cancelled by LEAs since the beginning of the program resulting in a net of 56 ECAA-Ed loans currently in the ECAA-Ed loan portfolio **Table 2** provides an overview of program loans and associated status. The increase in available funding over the original allocation to ECAA-Ed of $50.5 million is a result of loan repayments.

Loan repayments are collected twice per year once the project is complete, for a maximum of 20 years. All borrowers have met their obligations, and the ECAA-Ed program has not experienced any loan repayment defaults.

Table 2: Energy Conservation Assistance Act — Education Subaccount Status Overview as of June 30, 2021

Loan Status	Number of Loans	Loan Funds Spent (in millions)
Loans With Completed Project Final Reports	29	46.16
Loans with Outstanding Completed project Final Reports	5	8.50
Completed Projects (Final Reports Due after 6/30/21)	3	2.23
Projects in Construction Stage	19	$23.67
Totals	**56**	**$80.56**

Source: California Energy Commission

Loan recipients are required to report post-installation energy consumption and project savings 15 months after project completion. Twenty-nine loan recipients submitted post installation reports and the reported total annual energy savings were 21.5 million kilowatt-hours and 15,286 therms, equivalent to about 7,114 tons of reduced carbon dioxide equivalent emissions annually.

Bright Schools Program Cumulative Results

The Bright Schools Program provide LEAs and community college districts with technical assistance to identify energy efficiency measures in existing buildings and assisted in applying for Proposition 39 K-12 Program funding through January of 2020. Of the $56 million appropriated to ECAA-Ed, $5.5 million was designated to the Bright Schools Program. The contract to provide technical assistance for the Bright Schools Program expired January 30, 2020, and the contract balance of $2.1 million was returned to the Energy Conservation Assistance Act – Education Loan Program. A new contract for the program was executed and funded by another source.

With the end of Bright Schools Program funding through Proposition 39 K-12 in January of 2020, there are no changes to report for Fiscal Year 2020-21. As of June 30, 2020, 200 technical assistance requests from local educational agencies were approved via work authorizations, totaling $3.5 million. The CEC established a maximum cost per approved work authorization of $20,000. The average cost of the 200 approved work authorizations was $16,500. **Table 3** shows the status and amount of related funding of technical assistance awards approved under work authorizations.

Table 3: Bright Schools Program Technical Assistance Overview as of June 30, 2021

Technical Assistance Status	Number of Technical Assistance Requests	Amount Spent
Completed	197	$2,777,910
In Progress	0	N/A
Withdrawn	3	$28,225
Contractor Administration	N/A	$567,371
TOTALS	**200**	**$3,373,506**

Source: California Energy Commission

Estimating Energy Cost Savings

Energy studies from the Bright Schools Program identify potential school site energy projects and calculate estimated energy savings. Of the 200 approved technical assistance- awards completed, 159 were energy audits, 22 were energy expenditure plan preparations, 15 were project bid specifications, and one was for engineering support service and three were withdrawn. The total annual energy savings identified in the completed energy audits was 28,647 megawatt-hours and 305,025 therms, representing roughly 11,135 tons of reduced carbon dioxide equivalent emissions annually.

School Bus Replacement Program

Senate Bill 110 (Committee on Budget and Fiscal Review, Chapter 55, Statutes of 2017) appropriated funds from the Proposition 39 K–12 Program to establish the School Bus Replacement Program at the CEC. Senate Bill 110 provided for a one-time funding of $75 million to replace older diesel school buses with battery-electric school buses in disadvantaged and low-income communities throughout California.

The $75 million used exclusively for the purchase of battery-electric school buses was distributed among four regions in California: Northern California, Central California, Southern California, and Los Angeles County. In addition, nearly $14 million in Clean Transportation Program funds (formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program) was awarded to provide the necessary charging infrastructure to operate the buses. Finally, the CEC provided $1 million in Clean Transportation Program funds for workforce training and development, awarding the contract to Cerritos Community College to develop and implement curricula and training for automotive instructors as well as maintenance and service staff for school districts that were awarded electric school buses.

CHAPTER 1:
Proposition 39 K-12 Program

Background

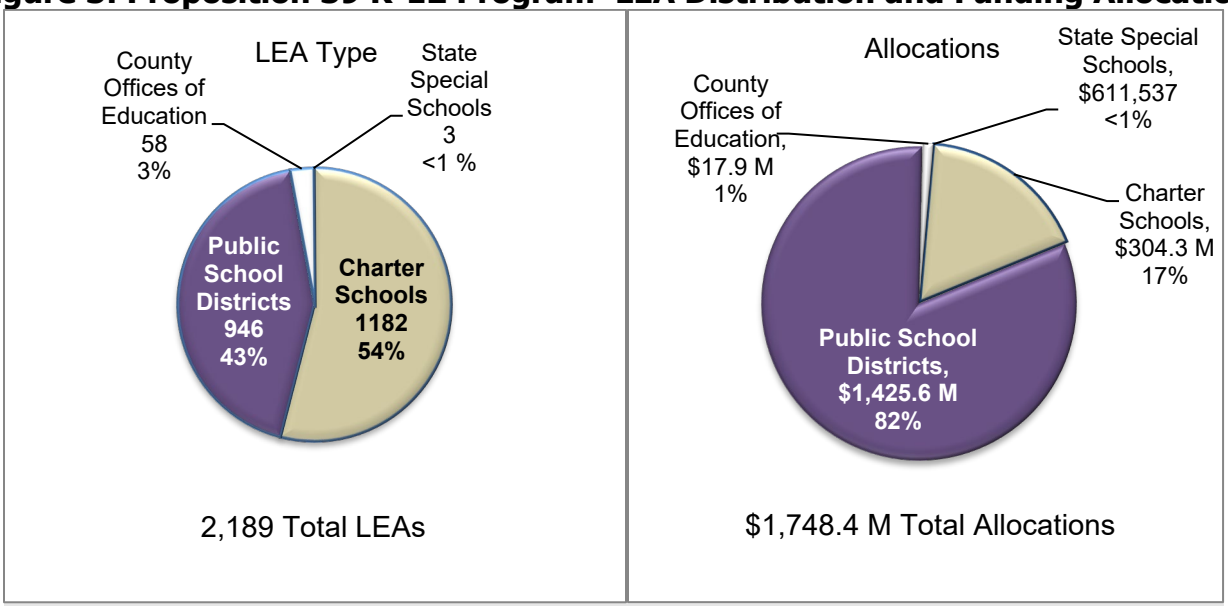
The Proposition 39 K-12 Program provided grant funds for energy projects including energy efficiency measures and clean energy generation installations at sites within an LEA. The CDE reported 2,189 eligible LEAs in the state. LEAs submitted EEPs to the CEC for the technical review, evaluation, and approval to fund the proposed energy project detailed in the EEP. Upon approval of the EEP, the CEC notified the CDE, which was responsible for distributing the funding from the Clean Energy Job Creation Fund to the LEAs.

During the first five fiscal years of the Proposition 39 K-12 Program, (2013–14, 2014–15, 2015–16, 2016–17, and 2017–18), the California Legislature appropriated $1.748 billion to the Proposition 39 K-12 Program. No additional funding was appropriated in Fiscal Years 2018–19, 2019–20, or 2020-21.

Figure 3 summarizes the distribution of LEA types and the associated funding allocation for the five fiscal years of program funding.

LEAs were allocated funds based on the size of student population (average daily attendance or ADA) and the number of students eligible for free and reduced-priced meals (FRPM). CDE defines ADA as the total days of student attendance divided by the total days of instruction. Because public school districts typically have multiple school sites and higher student attendance than other school types, they received a much larger funding allocation than other LEAs, such as charter schools. For example, while charter schools represent 54 percent of eligible LEAs, their allocation was only 17 percent of total funding because they are typically smaller and have fewer students.

Figure 3: Proposition 39 K-12 Program–LEA Distribution and Funding Allocation



Source: California Energy Commission

Geographically, the highest LEA participation occurred in the counties of Alpine, Calaveras, Colusa, Del Norte, Glenn, Lake, Merced, Modoc, San Benito, San Luis Obispo, Sierra, Siskiyou, and Yuba, where LEA participation rate was 100 percent. Participation by each county was determined as of Fiscal Year 2017-18 since the Proposition 39 K-12 Program did not accept new EEPs after that fiscal year. Some LEAs that submitted EEPs subsequently canceled the EEPs, but they are considered to have participated if they submitted at least one EEP. Participation percentage by each county is summarized in **Table 4.**

Table 4: Local Educational Agency Participation by County

County	Participation Percentage
Alameda	78%
Alpine	100%
Amador	67%
Butte	75%
Calaveras	100%
Colusa	100%
Contra Costa	71%
Del Norte	100%
El Dorado	76%
Fresno	83%
Glenn	100%
Humboldt	93%
Imperial	86%
Inyo	90%
Kern	90%
Kings	86%
Lake	100%

County	Participation Percentage
Lassen	92%
Los Angeles	66%
Madera	95%
Marin	91%
Mariposa	67%
Mendocino	91%
Merced	100%
Modoc	100%
Mono	75%
Monterey	83%
Napa	78%
Nevada	92%
Orange	75%
Placer	89%
Plumas	67%
Riverside	86%
Sacramento	90%
San Benito	100%
San Bernardino	81%
San Diego	73%
San Francisco	44%
San Joaquin	74%
San Luis Obispo	100%
San Mateo	78%
Santa Barbara	90%
Santa Clara	79%
Santa Cruz	88%
Shasta	85%
Sierra	100%
Siskiyou	100%
Solano	94%
Sonoma	92%
Stanislaus	82%
Sutter	68%
Tehama	84%
Trinity	82%
Tulare	84%
Tuolumne	93%
Ventura	81%
Yolo	83%
Yuba	100%

Source: California Energy Commission

Appropriations

Table 5 summarizes Clean Energy Job Creation Fund appropriations for Fiscal Years 2013–14, 2014–15, 2015–16, 2016–17, and 2017–18. There were no new appropriations after Fiscal Year 2017–18.

Table 5: Overview of Clean Energy Job Creation Fund Appropriations

Category	FY 2013-14 *(in millions)*	FY 2014-15 *(in millions)*	FY 2015-16 *(in millions)*	FY 2016-17 *(in millions)*	FY 2017-18 *(in millions)*	TOTALS *(in millions)*
K-12 Program	$381.0	$279.0	$313.4	$398.8	$376.2	$1,748.4
ECAA-Ed	$28.0	$28.0	$0	$0	$0	$56.0
TOTALS	**$409.0**	**$307.0**	**$313.4**	**$398.8**	**$376.2**	**$1,804.4**

Source: California Energy Commission

Summary of Submitted and Approved Energy Expenditure Plans

LEAs were required to request funding for energy projects by submitting an EEP to the CEC. As of June 30, 2018, 2,121 plans totaling $1.54 billion in funding had been approved. **Table 6** summarizes the number of EEPs approved, the number of school sites, and the amount of funding approved by fiscal year. No new EEPs were approved after Fiscal Year 2017–18 so this represents the maximum number of EEPs approved. The number has declined in subsequent years due to cancelations and amendments.

Table 6: EEPs Approved by Fiscal Year as of June 30, 2018

Fiscal Year	EEPs Approved	School Sites	Funding Approved *(in millions)*
2013-14	31	75	$19
2014-15	398	1,235	$260
2015-16	533	2,015	$429
2016-17	470	1,779	$382
2017-18	689	2,085	$452
TOTALS	**2,121**	**7,189**	**$1,542**

Source: California Energy Commission

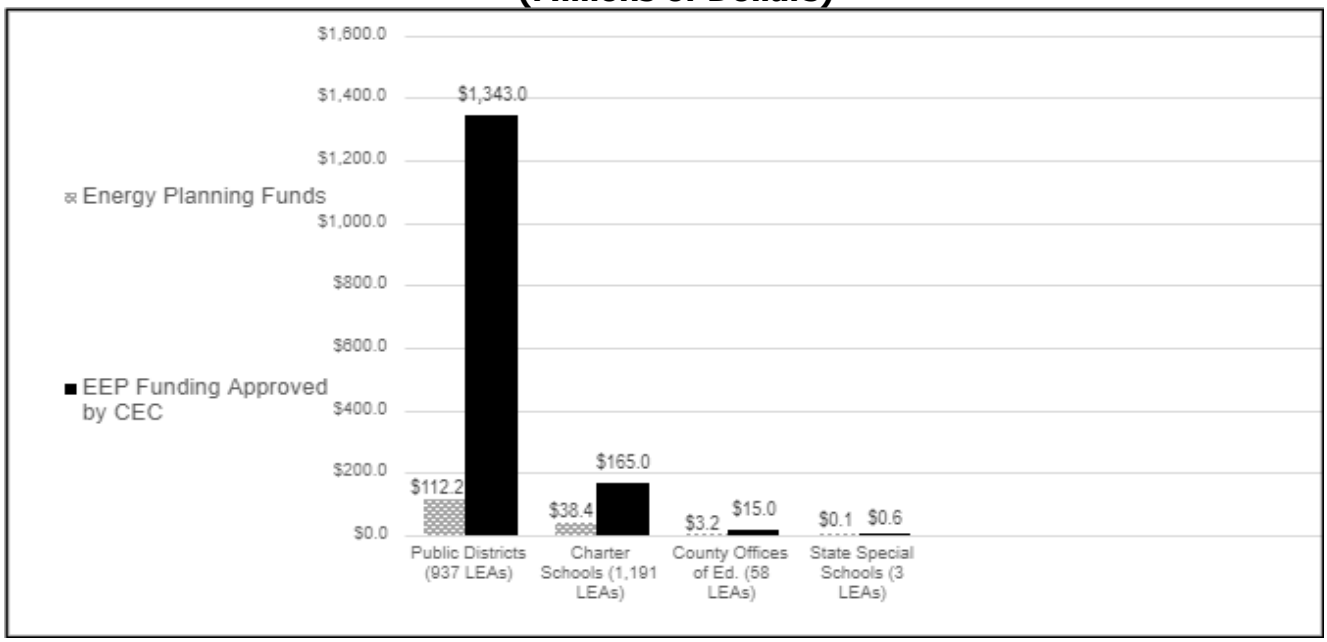
As with any project, changes are sometimes necessary. LEAs with significant changes to previously approved EEPs must submit an amendment request to the CEC. Significant changes include the deletion of eligible energy efficiency and clean energy generation measures, the

addition of measures not included in the approved EEP, cost increases or decreases of more than 15 percent, and a change of more than 15 percent in the approved quantity of equipment installed. After June 30, 2018, the number of EEPs and amount of approved funding declined due to amendments and cancellations.

Funding Approved by Type of LEA

There are four types of LEAs: (1) public school districts, (2) charter schools, (3) county offices of education, and (4) state special schools. **Figure 4** illustrates the distribution of approved EEP funding as of June 30, 2021.

Figure 4: Proposition 39 K-12 Funding Approved by Type of LEA as of June 30, 2021 (Millions of Dollars)



Source: California Energy Commission

Public school districts represent most of the approved EEPs, with $1.34 billion awarded for energy project funding and $112.2 million for energy planning funding. Charter schools have the second most energy projects approved, with $165 million in energy project funding and $38.4 million for energy planning funding. This represents a decline in approved funding from the previous year due to EEP amendments and cancellations. County offices of education have $15 million in approved energy project funding and $3.2 million in energy planning funding. The three state special schools provide comprehensive educational programs for blind, visually impaired, or deaf students and have combined energy project funding of $611,537 and $123,351 in energy planning funds as of the Fiscal Year 2020-21 reporting period. Combined, these awards total $1.53 billion for energy projects and $154.6 million for energy planning.

Allocations by Tier Level

Allocations to LEAs were based primarily on the prior year's average daily attendance, with four tier levels defining the minimum amount that an eligible LEA will receive each year. These allocations are shown in **Table** 7. **Table 8** indicates maximum participation by tier level.

Table 7: Minimum Funding Award Levels

Tier Levels	Average Daily Attendance Prior Year	Minimum Funding Awards
Tier 1	100 or fewer	$15,000 plus FRPM adder*
Tier 2	101 to 1,000	Based on prior year ADA or $50,000 (whichever amount is larger) plus FRPM adder*
Tier 3	1,001 to 1,999	Based on prior year ADA or $100,000 (whichever amount is larger) plus FRPM adder*
Tier 4	2,000 or more	Based on prior year ADA plus FRPM adder*

Source: California Energy Commission

*FRPM = Free and reduced-priced meals. Eighty-five percent of the award amount is based on ADA in the prior year, while 15 percent is based on percentage of FRPM in each LEA.

Table 8: Participation by Tier Level

Tier Levels	LEA Participation Since Prop. 39 Inception (By Number of LEAs)
Tier 1	167 (69%) [out of 238]
Tier 2	952 (73%) [out of 1,307]
Tier 3	152 (89%) [out of 171]
Tier 4	468 (99%) [out of 473]

Source: California Energy Commission

Local Educational Agencies with High Free and Reduced-Priced Meal (FRPM) Ratios

Under Senate Bill (SB) 73 (Committee on Budget and Fiscal Review, Chapter 29, Statutes of 2013), the Proposition 39 K-12 Program allocates awards based on a formula. Eighty-five percent of the award is based on the LEA's average daily attendance reported to the CDE in April and May in the prior fiscal year, and 15 percent is based on FRPM in the prior year. For this report, an LEA is considered to have a high ratio of FRPM if the ratio of FRPM/ADA is 0.75 or greater.

Approved Eligible Energy Measures

Each approved EEP, including amended EEPs, can include multiple energy efficiency and clean energy generation measures at several school sites within an LEA. The Proposition 39 K-12 Program has resulted in the installation of thousands of energy efficiency and clean energy generation measures throughout the state. Most of the approved energy measures are lighting-related, comprising about 55 percent of the total. About 20 percent fall into the category of control measures for heating, ventilation, and air conditioning (HVAC) and lighting. Approximately 15 percent are HVAC measures. Approximately 7 percent are other efficiency measures that include plug loads, pumps, motors, building envelope, domestic hot water, kitchen equipment, high-efficiency transformers, energy storage, pool equipment, irrigation sprinklers, and pump controls. About 2 percent are attributed to photovoltaic (PV) generation and power purchase agreements. LEAs leveraged additional funding sources outside Proposition 39 K-12 to finance energy project costs exceeding Prop 39 funding allocation approval resulting in the total project cost of measures approved exceeding the approved Proposition 39 funding.

Table 9 summarizes the breakdown and the costs associated with each category.

Table 9: Summary of Eligible Energy Measure Categories as of June 30, 2021

Energy Measure Category	Total # of Measures Approved	Total % of Measures Approved	Total Project Cost of Measures Approved	Total % of Project Cost of Measures Approved
Lighting	12,306	55.3%	$739,051,733	36.6%
HVAC & Lighting - Controls	4,552	20.4%	$155,735,049	7.7%
HVAC	3,294	14.8%	$605,905,582	30.0%
Other Energy Efficiency Measures	1,587	7.1%	$144,526,025	7.2%
Self-Generation (PV)	527	2.4%	$371,369,683	18.4%
TOTALS	**22,266**	**100%**	**$2,016,588,072**	**100%**

Source: California Energy Commission

LEA Reporting Results

Reporting Schedule

LEAs are required to provide annual progress reports on approved EEPs until all energy measures within an approved EEP are installed. Annual progress reports are submitted at the end of each fiscal year. When all energy measures in an EEP are installed, LEAs must submit a final project completion report no later than 15 months after the project completion date. This statutory requirement (Public Resources Code Section 26240[b]) is designed to show a full year of energy usage data indicating energy savings after all approved energy measures are installed.

Report Status

As of November 15, 2021, 264 completed project final reports were not submitted as required by statute. These EEPs and associated LEAs are listed in Appendix C. The CEC is working jointly with the CDE to administer a report submittal compliance plan. Completed project final reporting is a condition of funding, and nonresponsive LEAs are unlikely to be subject to invoicing issued by the CDE for repayment of Prop 39 K-12 approved EEP funds disbursed by the CDE.

Cost-Effectiveness Criteria: Savings-to-Investment Ratio

Public Resources Code Section 26206(c) requires that all projects be cost-effective, and Public Resources Code Section 26235(a)(2)(D) requires the CEC to establish guidelines for methods for cost-effectiveness determination. In the *Proposition 39: California Clean Energy Jobs Act*

2016 Program Implementation Guidelines (2016 Guidelines),[1] the CEC established the savings-to-investment ratio (SIR) as the cost-effectiveness determination, which is calculated based on the net present value of savings divided by project installation costs, subtracting project rebates and other nonrepayable funds.

An EEP must have an SIR of 1.01 or higher to be approved thereby qualifying for funding. This ratio compares the investment the LEA will make now with the savings it will achieve over the life of the project. For every $1.00 invested, a minimum of $1.01 must be saved. Savings include energy cost savings and a fixed maintenance savings of 3 percent of the total project installation cost. Finally, non-energy benefits such as health, safety, enhanced comfort better indoor air quality, and improved learning environment may also be considered in the SIR calculation. The CEC values non-energy benefits at a fixed 5 percent of the total project installation cost. CEC staff analysis concluded the combined savings-to-investment ratio for the 1,504 completed projects, as reported in LEA submitted completed projects final reports, is 1.30; that is, for every $1.00 invested in these projects, an estimated $1.30 will be saved over the expected useful life of the installed energy technologies. This exceeds far exceeds the minimum 1.01 required by program guidelines.

In addition, the 2016 Guidelines allow some leveraged funding to be subtracted from the total project cost in the SIR calculation. Examples include nonrepayable funds such as bond funding, deferred maintenance, and general operation budgets.

Identifying Energy Savings

There are many nuanced and unique factors that affect energy usage, such as building operations, student population, building expansion, and weather patterns. School sites with multiple buildings often have one or more energy (electric and natural gas) meters that measure aggregate or total energy consumption, making it difficult to measure and attribute energy savings to specific energy efficiency measures.

The CEC allows LEAs to use several methods detailed in the 2016 Guidelines to report energy savings after completion of an energy project, giving LEAs the flexibility to determine program benefits without the use of formal measurement and verification procedures that would otherwise comprise most of the project costs. These methods include:

1. The Utility Incentive Completion Report.
2. The CEC Energy Savings Calculator.
3. The LEA's own post installation energy savings report.
4. Third-party post installation energy savings report.

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1 Antonio, Marites, Haile Bucaneg, Joji Castillo, Cheng Moua, Ryan Nelson, Elizabeth Shirakh, and Joseph Wang. 2016. *Proposition 39: California Clean Energy Jobs Act –2016 Program Implementation Guidelines.* California Energy Commission, Energy Efficiency Division. C 400-2020-006-CMF. https://ww2.energy.ca.gov/publications/displayOneReport_cms.php?pubNum=CEC-400-2020-006-CMF

Completed Projects Final Reports

From the program launch through the Fiscal Year 2020-21 reporting period, 1,263 of the 1,725 currently participating LEAs have completed and installed all measures contained in their EEPs and have submitted 1,504 completed project final reports. These completed final project completion reports represent $1.046 billion in gross project costs. Of this amount, the Proposition 39 K-12 Program provided roughly $892 million in grant funds and LEAs contributed the remaining $154 million in leveraged funding. The reported annual energy saved for these completed projects is 341,571 megawatt-hours (MWh) and 1,090,495 therms, resulting in about 117,897 tons of carbon dioxide (CO_2) equivalent reduction annually. These completed EEPs represent 298.7 million square feet of conditioned space. Appendix A lists LEAs that have completed construction and have submitted a final project completion report.

Completed project final reports require LEAs to include one year of post-installation utility bills. CEC staff review this information to see if the kWh and the therm consumption are proportionally reduced by the expected energy savings from the program-funded measures. If the savings does not seem to occur, staff asks for a probable explanation. Often energy usage increased due to changing weather or building usage operations when compared to the base year. However, in recent years, energy usage at many schools has been affected by unusual conditions. Widespread fires throughout the state have damaged or destroyed some school facilities, affecting their operations and thus their energy use. In addition, many schools altered their operations due to the COVID-19 pandemic. The reaction to the pandemic has varied. Some LEAs closed schools for months and reduced their equipment usage to minimal levels. This would cause energy uses at those schools to decline when compared to previous years. In some cases, LEAs required that their schools enhance ventilation by operating their HVAC system more often or at higher rates. This would have the effect of increasing their energy usage when compared to previous years. These factors make it difficult to isolate the effect of the program-funded measures on LEAs' energy bills.

Analyses of these reports conclude the combined SIR for these 1,504 projects is $1.30 in return for every $1.00 invested. **Table 10** summarizes the comparison of the last two reporting periods.

Table 10: Cumulative Summary of Final Project Completion Reports

Category	Last Report (as of June 2020)	Current Report (as of June 2021)
Number of Completed Final Reports	962	1,504
Funding		
Total Gross Project Cost	$673 million	$1,046 million
Prop. 39 Share	$585 million	$892 million
Leveraged Funding	$88 million	$154 million
Annual Energy Savings		
kWh Savings	22,417,4133	341,570,825
Therm Savings	620,828	1,090,495
CO_2 equivalent emissions reduction	76,821 tons	117,897 tons
SIR	1.38	1.30
Total Cost Savings	**$42.8 million**	**$66.3 million**

Source: California Energy Commission

Two general trends emerged in reviewing all submitted final project completion reports.

First, the reported "after" project energy savings in the final project completion reports typically matched or exceeded the estimated energy savings identified in the approved EEPs. If the reported energy savings deviated significantly from the estimated energy savings, most LEAs identified potential reasons for the difference.

Second, most of the 1,263 LEAs with completed energy projects experienced a decrease in energy-use intensity (EUI), a metric that measures the energy performance at a school site. The EUI indicates the amount of energy used per square foot of building space per year. It is calculated by dividing the annual energy use (electricity, gas, fuel) by the gross square footage of the school. On average of 11.48 kilo British thermal units (kBtu) per square foot of space was saved for those projects that have final project completion reports. Those LEAs that did not experience a decrease in EUI identified changes to building additions, operating hours,

schedules, and increased student populations, which may have accounted for the increase in the EUI. **Table 11** below summarizes the reported EUI data.

Table 11: Energy Use Intensity Summary

Total Combined Annual Weighted Average EUI
Before: 91.24 kBtu/square foot
After: 79.76 kBtu/square foot

Source: California Energy Commission

Annual Progress Reports

The CEC requires LEAs to submit an annual progress report for each EEP submitted until the project is complete. In annual progress reports, LEAs indicate whether all the measures in the EEP are installed, i.e., the project is complete. If the project is complete, the LEA is no longer required to fill out an annual progress report; instead, they are required to fill out a completed project final report. LEAs were required to submit annual reports for activities ending in Fiscal Year 2020-21 to the CEC no later than October 1, 2021. Since all projects were required to be completed by June 30, 2021, the end of Fiscal Year 2020-21, all 2021 annual reports should have indicated a completion date before or on June 30, 2021.

For Fiscal Year 2020-21, 275 annual reports were due to be submitted by October 1, 2021. However, there were 72 delinquent annual reports for this last annual reporting period. Staff continue to work with LEAs to receive all required reports and for purposes of providing the most complete data. This report reflects data from 203 reports received as of November 15, 2021, which accounts for 74 percent of total reports due. Appendix B lists annual progress report data.

As noted above, LEAs are required to submit annual reports until they have reported that projects are complete. When projects are complete, LEAs are required to gather 12 months of energy use data and then must submit a final report. Final reports are due between 12 to 15 months after the project completion date. Of the 203 annual progress reports received, 167 annual progress reports reported that they completed their energy project less than 12 months ago and 36 are ready to submit a final project completion report. Based on these reports, these projects account for $209 million in gross project costs, which included $188 million of Proposition 39 K-12 Program funding and $21 million in leveraged funding from sources such as utility incentives, bonds, deferred maintenance, and general operation budgets.

Delinquent Reports

CEC staff are collaborating with the CDE to immediately implement a delinquent report compliance plan that includes documented communications to LEAs delinquent in filing necessary reports (tailored by LEA level of delinquency and effort to comply), establishing deadlines, and notice of consequential invoicing for repayment of funding disbursed for approved EEPs. As of November 15, 2021, for the reporting period ending Fiscal 2020-21, 72 out of 275 due annual reports were delinquent. Thirteen of the LEAs missing annual reports

also did not submit annual reports for Fiscal Year 2019-20 and six LEAs were also missing annual reports for Fiscal Year 2018-19.

As of November 15, 2021, 265 completed project final reports were delinquent. LEAs were actively working with CEC staff on 58 of the delinquent final reports to make necessary amendments to the EEPs so the final report could be approved and the remaining 206 represent non-responsive LEAs. As outstanding annual reports are received, additional late final reports may be identified based on the provided project completion dates.

Implementation Overview

Program Implementation Summary

The Proposition 39 K–12 Program began six months after former Governor Edmund G. Brown Jr. signed SB 73 in June 2013, which provided the framework and appropriations necessary to carry out the requirements of Proposition 39. The CEC began a comprehensive public process to design and develop the program and the program implementation guidelines. Statewide public outreach included five public meetings and three webinars, which reached more than 500 participants and 180 docket submittals (13-CCEJA-01). On December 19, 2013, the CEC adopted the *Proposition 39: California Clean Energy Jobs Act – 2013 Program Implementation Guidelines* (2013 Guidelines). Once the 2013 Guidelines were adopted, CEC staff expedited program implementation. Starting in January 2014, the CEC released the EEP application forms, program handbook, and energy savings calculators; established an electronic submission process; hired and trained staff members; provided 10 training seminars and two program application instruction webinars that reached more than 800 LEAs statewide; and established a program call center.

The Proposition 39 grant application used by the LEAs was automated with an EEP on-line application system deployed in 2015. This system improved the speed and accuracy of the grant and EEP submission and review process. Two modules were also added to the online system: one for amending approved EEPs and one for submitting required reports. The first annual progress reports were submitted by LEAs in November 2015 and are required to be submitted each year through the end of the program. LEAs could submit new EEPs through February 26, 2018. After that date they could submit amendments so long as they adhered to amendment submittal criteria.

The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to most aspects of our daily life including the education system. All LEAs have experienced closure of buildings to different degrees since mid-March 2020.This has had a significant impact on our Proposition 39 participating LEAs because they are not able to complete installation of their approved energy projects and gather relevant energy usage data post energy measure installation. To provide relief to this unforeseen impact of COVID-19 impact, the LEAs were granted an opportunity to complete their approved energy projects. The *Proposition 39: California Clean Energy Jobs Act – 2020 Program Implementation Guideline*s extended two key program milestone dates: project completion date was changed from June 30, 2020, to June 30, 2021, and the project completion final report due date was changed from September 30, 2021, to September 30, 2022.

Program Implementation Updates and Resources

The CEC provided extensive program communication, outreach, and education through webinars, workshops, conference presentations, press releases, blog posts, listserv announcements, direct phone calls, direct mail, and public meetings. Through these efforts, the CEC identified and addressed barriers to program participation. Since the CEC adopted the 2013 Guidelines, there have been three revisions to address barriers to meet charter school eligibility requirements and for some LEAs to meet the project SIR requirement. In June 2014, the first revision changed charter school eligibility, making it easier for charter schools to participate in the program. Further modifications to the SIR for all LEAs were made in December 2014 and July 2016.

On June 30, 2016, the CEC launched the Proposition 39 Publicly Searchable Database to meet this legislative requirement and offer a new level of data transparency for these publicly funded programs. With several ways for the public to view detailed program information, the interactive database provides quick searches for Proposition 39 K-12 and community college district (CCD) metrics.

More complex Proposition 39 K-12 Program research data are also available. This database includes LEA reporting data that are regularly updated, provides clean energy project site information that is reported by LEAs, and includes utility-reported school energy consumption and billing data by school site.

Senate Bill 110

On July 12, 2017, Governor Brown signed SB 110 (Committee on Budget and Fiscal Review, Chapter 55, Statutes of 2017), which included language to extend the Proposition 39 K–12 Program indefinitely.

To give LEAs an opportunity to use any unrequested Proposition 39 K-12 Program grant funds, SB 110 created three additional grant programs and allocated funds for loans and technical assistance. Of the unrequested funds, the first $75 million was used to fund a School Bus Replacement Program and the remainder (up to $100 million) was used to fund a competitive Energy Conservation Assistance Act-Education Subaccount (ECAA-Ed) loan program. Although a continuation of a Proposition 39 K-12 Program was also authorized in SB 110, there were not sufficient funds for the program. Any additional program funding is subject to appropriation in the annual budget act.

Conclusions and Next Steps

Due to effects of COVID-19, the deadline for project completion was extended from June 30, 2020, to June 30, 2021, and the deadline for final project completion reports from September 30, 2021, to September 30, 2022. This report provides data collected from LEAs submitting completed project final reports representing 1,504 projects from program inception to the reporting period ending June 30, 2021. Objectives for the Proposition 39 K-12 Program included savings gained from investment from the Clean Energy Job Creation Funds (Savings to Investment), energy use savings (Energy-Use Intensity) and the resulting energy cost savings. The financial savings from more efficient buildings provide schools with the flexibility to pay for other upgrades and programs that enhance student learning.

Progress made towards achieving these legislative objectives for the Proposition 39; Clean Energy Jobs Act K-12 program is noted in 1,504 completed projects reporting results from program inception through the reporting period ending Fiscal Year 2021-2021. Savings to Investment Ratio is 1.30, for every $1.00 invested $1.30 in energy costs is saved; energy-use intensity decreased on average from 91.24 British thermal units (BTUs) per square foot before energy project installation to 79.76 BTUs per square foot after energy project installation, resulting in energy use savings with an associated cumulative energy cost savings of $66.3 million annually.

CEC staff are collaborating with the CDE to immediately implement a delinquent report compliance plan that includes documented communications to LEAs delinquent in filing necessary reports (tailored by LEA level of delinquency and effort to comply), establishing deadlines, and noticing of consequential invoicing for repayment of funding disbursed for approved EEPs. This delinquent compliance plan is a key element of a joint effort by the CEC, the CDE and Department of Finance to account for all unspent Prop 39 K-12 program funds including those funds invoiced to LEAs as a result of State Controller's Office audits and failure to submit completed project final reports. Upon the reconciliation of these unspent Prop 39 K-12 program funds, the Department of Finance will provide the method of transfer of funds from the Clean Energy Jobs Creation Fund.

CHAPTER 2:
Energy Conservation Assistance Act — Education Subaccount

Financing Program

Background

The ECAA-Ed is a revolving loan program using funding received from the Clean Energy Job Creation Fund. ECAA-Ed provides zero percent loan financing to eligible entities for energy efficiency, demand reduction, and energy generation projects. All eligible LEAs eligible to receive Proposition 39 K–12 Program awards are also eligible to apply for an ECAA-Ed loan for energy-related projects. The loan repayment term requires payments of no more than 40 equal semi-annual payments with amounts determined based on the energy project measures to be installed and projected energy cost savings.

In accordance with the authorization of SB 110 (2017), a transfer of funds was received into the ECAA-Ed account. The CEC issued a $36 million program opportunity notice (PON) offering loan amounts for K–12 LEAs to finance a wide range of energy efficiency and renewable energy projects. The PON required a competitive solicitation process and established the following eligibility criteria; the state was divided into four regions: north, central, south, and Los Angeles County; categorized the LEAs by size: small (less than 1,000 students), medium (between 1,000 – 2,000 students), and large (more than 2,000 students) with each region allocated $9 million, with $3 million set aside for each size of LEAs. The CEC received 21 applications by the first due date of May 31, 2019. Out of the 21 applications, seven were selected for funding for a total of $6,718,789. The funds not allocated to the awardees were put toward another PON. Under this second PON, 16 applications were selected for funding during FY 20/21. Two of these projects were cancelled during FY 20/21. The remaining projects totaled $17,588,383 in funding.

ECAA-Ed Funding

Funding from the Clean Energy Job Creation Fund was allocated to the California Energy Commission (CEC) in Fiscal Years 2013–14 and 2014–15 for zero-interest revolving loans and technical assistance. No funding was allocated in Fiscal Years 2015–16, 2016–17, 2017–18, or 2018–19.

During Fiscal Year 2020-21, the ECAA-Ed Program received funding in accordance with the authorization of SB 110. **Table 12** shows the funding received.

Table 12: ECAA-Ed Financing and Bright Schools Program Allocations

Fiscal Year	ECAA-Ed Financing (Energy Project Loans)	Bright Schools (Technical Assistance)	TOTAL
2013-14	$25,291,524	$2,708,476	$28,000,000
2014-15	$25,200,000	$2,800,000	$28,000,000
2015-16	0	0	0
2016-17	0	0	0
2017-18	0	0	0
2018-19	0	0	0
2019-20	38,524,000	0	38,524,000
2020-21	0	0	0
TOTALS	**$89,015,524**	**$5,508,476**	**$94,524,000**

Source: California Energy Commission

Approved Loans

As of June 30, 2021, the CEC approved 60 ECAA-Ed loans. This amount represents $82.1 million of the $89.0 million originally allocated to the loan program. ECAA-Ed loan recipients request loan fund disbursements based on paid invoices submitted to the CEC for reimbursement. A loan recipient's total reimbursement request may be less than the approved loan amount because of a scope change or a reduction in actual total project cost. Any funds remaining in the loan account are liquidated and used to fund additional ECAA-Ed loans.

Of the 60 approved loans, 37 loan recipients have completed projects representing nearly $56.9 million in loans. Of this amount, $53.1 million was disbursed to loan recipients, and the remaining $3.8 million was liquidated and returned to ECAA-Ed account. Four loans have been cancelled since the beginning of the program, including two loans approved for approximately $3.2 million that were cancelled during fiscal year 2020/2021.

Appendix D summarizes the approved and completed loans and the cumulative expenditures of each loan as of June 30, 2021.

Completed Project Final Reports

Resources Code Section 26240(b) requires each loan recipient to submit a completed project final report no later than 15 months after the project completion date. A project is considered complete when all loan-funded energy measures are installed. This statutory condition is designed to provide, among other informational items, a full year of energy usage data after all approved energy measures have been installed.

As of June 30, 2021, 31 loan recipients submitted project completion final reports. These projects saved 21,519 megawatt-hours and 15,286 therms, reducing approximately 7,114 tons of CO_2 equivalent emissions annually. Reported energy savings resulted in an annual projected energy cost savings of $2.4 million. Appendix E summarizes the energy data obtained from these loan recipients. Of the remaining loan recipients, four projects had overdue final reports and the rest were in the project implementation phase.

Remaining Funds

As of June 30, 2021, approximately $18.4 million in loan funds were available in the ECCA-Ed account. This includes earnings generated by the account.

Repayments and Defaults

Loan repayments are made twice yearly after the loan project is complete. To date, all borrowers have met their loan obligations, and the ECAA-Ed Financing Program has not experienced any defaults.

New ECAA Legislation

During the most recent legislative session, Assembly Bill 33 (Ting, Chapter 226, Statutes of 2021) (AB 33) made several significant changes to the existing ECAA legislative language. ECAA allows for grants and loans to local governments and public institutions for projects that maximize energy use savings. AB 33 expanded this provision by specifically listing, as goals of the program, the expansion of energy storage systems and electric vehicle charging infrastructure. It also allowed eligible institutions to propose to bundle multiple projects together and recover costs through the savings of those projects bundled together. Additionally, the legislation expands the eligibility of the program by including Native American tribes as entities eligible for financial assistance. All these new legislative provisions are being incorporated into the ECAA program.

Bright Schools Program

Background

The Bright Schools Program (BSP) helps public K–12 schools and community colleges identify energy saving projects in existing buildings. The program provides a range of technical assistance services, including energy audits, third-party proposal reviews, and professional engineering support. The contract to provide technical assistance for the Bright Schools Program expired January 30, 2020, and the contract balance of $2.1 million was returned to the Energy Conservation Assistance Act – Education Loan Program. With the end of BSP funding through Proposition 39 K-12 in January of 2020, there are no changes to report for Fiscal Year 2020-21.

Funding

Public Resources Code Section 25416(d) authorized the CEC to set aside up to 10 percent of the Clean Energy Job Creation Funds for technical assistance to help eligible entities identify Proposition 39 K–12 Program energy efficiency, demand reduction, and generation projects. In

Fiscal Years 2013–14 and 2014–15, the BSP received $5.5 million. It has not received funding in subsequent fiscal years.

Through a competitive contract solicitation, the CEC selected a prime contractor and a team of professional energy engineers to assist with and support the objectives of the BSP. **Table 13** shows program expenditures as of June 30, 2020.

Table 13: Bright Schools Program Encumbrance and Expenditures as of June 30, 2020

Allocations, Encumbrances, and Expenditures	
Total Allocation	$5,600,000
Amount Reallocated to ECAA-Ed Loan Program	$91,524
Contract Amount Encumbered	$5,508,476
Expenditures as of 6/30/20	$3,373,506
Contract Balance	**$2,134,970**

Source: California Energy Commission

Of the $5.6 million allocated to the program, roughly $5.5 million had been encumbered as of June 30, 2020. The remaining $91,524 was reallocated to the ECAA-Ed Loan Program in 2015, resulting from unused funds from a previous BSP support contract.

Expenditures of $3,373,506 have provided technical assistance to 173 LEAs and community colleges to identify cost-effective energy projects. At least 80 BSP energy audit reports have been successfully used to support Proposition 39 K-12 EEPs.

The balance in the amount of $2,134,970 was returned to the ECAA-Ed Loan Program when the contract expired in January 2020. A new contract for the BSP was executed and funded by another source.

Energy Audit Reports

BSP energy audits have identified energy measure opportunities at 343 school sites. These energy measure recommendations represent an estimated potential annual energy savings of nearly 28,647 megawatt hours of electricity and 305,025 therms of natural gas, which are equivalent to 11,135 tons of reduced CO2 equivalent emissions annually. The estimated annual energy cost savings are $4.6 million. The identified energy measures would require an investment of more than $70 million and would be eligible for utility incentives of nearly $2.5 million.

Appendix F lists the details of the information above and includes the energy savings metrics and Proposition 39 K-12 Program funding spent for program participants.

CHAPTER 3:
School Bus Replacement Program

Solicitations

The School Bus Replacement Program used a two-phased approach to select buses for funding. During the first phase, staff released a solicitation in May 2018 titled *School Bus Replacement for California Public School Districts, County Offices of Education, and Joint Power Authorities* (GFO-17-607). This grant funding opportunity allowed all school districts, County Offices of Education (COE), and joint power authorities (JPA) in California to apply for up to 10 buses for replacement.

The California Energy Commission (CEC) received more than 200 applications totaling over 1,600 diesel school buses requested for replacement, the oldest of which was a 1978 diesel school bus. Individual school buses were evaluated based on three factors: age of bus, applicant's percentage of free and reduced-price meals recipients (FRPM), and applicant's disadvantaged community score from CalEnviroScreen 3.0, a web-based mapping application developed by the California Air Resources Board. Preference was given to applicants with higher percentages of FRPM and disadvantaged community scores. From the applications received, an initial list of ranked buses was released in November 2018.

The second phase of the program kicked off in November 2018, with a solicitation to select an electric school bus manufacturer(s) or dealer to design, construct, and deliver electric school buses to the public-school districts, COEs, and JPAs that applied for the replacement of its school buses. The purpose of this solicitation was to establish a bulk purchase price for school districts, COEs, and JPAs. Applications were evaluated and scored for the technical evaluation portion based on the following criteria: relevant experience and qualifications; project readiness and implementation; client references; battery and fuel range; warranty, service, and support; innovation; economic benefits to California; and ability to leverage funding. Applications passing the technical evaluation advanced to the next screen, where the lowest-cost bid was selected for each school bus type (Type A, Type C, Type D, and each type with or without chair lifts). The bus bid forms were ranked in order from lowest to highest cost per bus-by-bus type.

Awards

Table 14 shows a breakdown of each awarded manufacturer's bid amount for each bus type. The Lion Electric Co. was the awardee for the Type A electric school bus without wheelchair lift, and the Type C and D electric school buses with and without wheelchair lift. A-Z Bus Incorporated was the awardee for electric school bus Type A with wheelchair lift.

Table 14: School Bus Replacement Program Manufacturers' Bid Amounts

Applicant	Bus Type	Bid Amount
The Lion Electric Co.	Type A Without Chair Lift	$269,489
A-Z Bus Sales, Inc. - California (Micro Bird)	Type A With Chair Lift	$291,524
The Lion Electric Co.	Type C Without Chair Lift	$319,284
The Lion Electric Co.	Type C With Chair Lift	$327,727
The Lion Electric Co.	Type D Without Chair Lift	$330,109
The Lion Electric Co.	Type D With Chair Lift	$337,469

Source: California Energy Commission

Once the manufacturers were selected, CEC staff allocated funding based on bid price using the rank list to determine which applicants would be awarded funding for new buses. From the initial rank list of buses, the CEC funded 236 electric school buses. The applicants received funding for the replacement school bus, with an additional $60,000 in infrastructure funding per bus. The infrastructure funding came from the Clean Transportation Program.

Table 15 shows a breakdown of the number of awardees, number of buses awarded, and the total bus and infrastructure awards in each of the four regions. Nearly 90 percent of the awardees operate within disadvantaged communities. Since the last COB report, some schools decided not to accept awards or changed the types of buses originally awarded based on various needs of each district. As a result, the CEC was able to award buses to additional school districts in various regions, continuing to fund the next buses in line on the rank list.

Table 15: Description of School Bus Replacement Program Awards

Regions	Number of Awardees	Number of Buses Awarded[2]	Total Bus Award	Total Infrastructure Award
North	18	59	$18,602,233	$3,540,000
Central	23	59	$19,280,330	$3,540,000
Los Angeles	15	61	$18,684,622	$3,660,000
South	11	57	$18,536,719	$3,420,000
Totals	**66**	**236**	**$75,103,904**	**$14,160,000**

Source: California Energy Commission

The table below shows the CEC's timeline for anticipated bus delivery. At the close of 2019, 11 of the 236 buses funded were delivered to school districts. In 2020, 61 of the 236 buses were delivered to school districts. By the end of 2021, CEC staff is expecting 140 buses to be delivered. The CEC expects to have all buses delivered by September 2022.

Table 16 below indicates the estimated timeline for bus deliveries.

Table 16: Estimated Bus Delivery Timeline

Cumulative Percentage of Delivered Buses	Latest Bus Delivery Date
5%	12/31/2019
25%	12/31/2020
50%	12/31/2021
100%	9/30/2022

Source: California Energy Commission

[2]The number of buses awarded to each region differed based upon the cost of each bus type requested in each school district.

Infrastructure

The CEC is working with electric utilities, both public and investor-owned, to assist in upgrading the electrical infrastructure required to charge the awarded buses while emphasizing the need to plan for future electrical capacity needs. Electric vehicle supply equipment (EVSE) is required to be, at a minimum, an AC Level 2 network charger. AC Level 2 network chargers operate between 208-240 volts and provide charging rates ranging from 3-19.2 kW. The chargers are programmable so the user can determine the conditions that need to be met for charging to occur, including low energy costs or an abundance of renewable energy on the grid. Also, EVSE is required to be ENERGY STAR®-certified, and capable of charging a vehicle at a minimum of 6.2 kilowatts (kW); however, the CEC recommends EVSEs capable of charging at 19.2 kW. Networked EVSEs provide recipients with the ability to set charging for buses to off-peak demand hours, provide remote diagnostics, and allow remote start of connected vehicles. The CEC has funded 76 chargers as of October 2021 and expects to fund 236 chargers by the end of the program.

Workforce Development

In anticipation of the CEC's School Bus Replacement Program, the CEC began to work with California schools in 2018 to understand the importance and role of school bus training for zero-emission school bus technology. Schools expressed a need for training for school bus maintenance and service technicians, as well as training for bus operators for battery-electric technology. As part of their application for the School Bus Replacement Program, nearly 200 applicants identified a need for workforce development.

In 2019, the CEC approved a contract for $1 million with Cerritos Community College to develop and deliver the "Electric School Bus Training Project" to provide grantees the skills required to maintain the zero-emission school buses funded through CEC's School Bus Replacement Program. Training is available for both school district maintenance technicians and school bus operators. Course subjects include high-voltage safety, proper operation, and maintenance of zero-emission school buses and school bus charging. In 2020, the CEC launched the training project. Following California Governor Newsom's March 19, 2020, Executive Order N-33-20, in-person training options diminished so an online training tool, Today's Class Technician, was deployed. As of July 2021, this online training program concluded with a total of 79 participating technicians across two cohorts which represents over half of the total technicians from the associated CEC funded schools. The feedback from the online platform was positive and is being used to develop an in-person curriculum on the previously listed subjects. Public health restrictions have delayed beta testing for these courses, but they are still expected to begin rollout to various colleges in 2022.

School bus manufacturers and electric vehicle charging infrastructure companies also offer training to new electric school bus owners along with warrantied and ongoing support. Some examples of training include the following:

- The Lion Electric Company has developed learning centers in the state (Lion Academy), offering training to technicians and drivers, as well as support for customers through the steps of the purchase process for an electric school bus.

- A-Z Bus Sales also provides driver training and mechanic safety training for battery electric school buses.
- Twin Rivers Unified School District in Sacramento has refined and developed its own in-house training program to familiarize school bus drivers with the new zero-emission school buses and infrastructure technology.

Next Steps

The CEC will continue to work with the manufacturers and school districts to meet and exceed targeted deliveries for the remainder of the school buses. The CEC will also be working with all stakeholders to collect data, such as operating and maintenance costs, driving range, and annual mileage, to quantify the benefits of electric school buses.

Benefits

Cost savings analysis of electric school buses over their diesel counterparts indicates a lifetime fuel savings cost of about $28,000, or roughly 27 percent savings per bus.[3] Electric school buses require less maintenance than their diesel counterparts due to the reduction of moving components within the electric drivetrain and motor of the vehicles, providing a greater ability to minimize time out of operation. The reduction of operating costs provides recipients an incentive to adopt zero-emission vehicle (ZEV) technologies for bus fleets.

The CEC's School Bus Replacement Program will help reduce tailpipe emissions of smog-forming nitrogen oxides by 98,000 lbs. and toxic diesel soot by more than 2,500 lbs.[4] Minimizing exposure to hazardous emissions reduces the risk to adolescent bus riders of developing respiratory diseases such as asthma and helps the state achieve emissions reductions goals.[5]

Moreover, vehicle-to-grid (V2G) enabled electric school buses have the potential added benefit of serving grid operators, including balancing renewable peaks and valleys, as well as providing excess capacity and bulk storage when needed, which could be utilized as a revenue source by bus operators. V2G enabled battery electric school buses have the potential to reduce electricity generation related greenhouse gas emissions by 1,420 tons of CO_2 equivalence and eliminate $18,300 of air pollution externalities over their lifetime (Ercan, et al. 2016)[6]. School buses have been determined to be a good application for V2G because of the large batteries, predictable duty cycles, and long down times throughout the day when energy

[3] Based on 13,000 average annual miles.

[4] Toxic diesel soot is fine particulate matter that is 2.5 microns or less in diameter.

[5] GFO-17-607 Cost Effectiveness Model, available at https://www.energy.ca.gov/sites/default/files/2020-04/Cost-Effectiveness_ada.pdf.

[6] Ercan, Tolca, Mehdi Noori, Yang Zhao, and Omer Tatari. 2016. "On the Front Lines of a Sustainable Transportation Fleet: Applications of Vehicle-to-Grid Technology for Transit and School Buses." Energies. MDPI.

demand is greatest. These factors can also provide on-site resiliency in the case of an emergency power shutoff by the utility or during a catastrophic event such as a wildfire.