

**HANDBOOK TO THE  
EXPENDITURE PLAN FORMS  
AND ENERGY SAVINGS  
CALCULATORS**

**PROPOSITION 39: California Clean  
Energy Jobs Act – 2013  
ENERGY EXPENDITURE PLAN  
HANDBOOK (Revised)**



CALIFORNIA  
ENERGY COMMISSION

Edmund G. Brown Jr., Governor

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# Energy Expenditure Plan Handbook Overview

The California Energy Commission has developed this Energy Expenditure Plan Handbook (handbook), Expenditure Plan Forms A and B (forms), the Utility Data Release Authorization form, and energy savings calculators (calculators) to help local educational agencies (LEAs) submit and complete their energy expenditure plans that incorporate all the requirements of the *Proposition 39: California Clean Energy Jobs Act – 2013 Program Implementation Guidelines (guidelines)*. LEAs, which include county offices of education, school districts, charter schools, and state special schools, are the only entities that may submit Energy Expenditure Plans. This handbook, includes step-by-step instructions to assist the LEAs in completing the forms, also explains program requirements and how to use the calculators for simple eligible energy projects.



# CHAPTER 1:

## Energy Expenditure Plan

### Purpose

The Energy Expenditure Plan is the application package an LEA submits electronically to request Proposition 39 program award funds to implement eligible energy projects. The Energy Expenditure Plan includes all the information specified in the California Clean Energy Jobs Act – 2013 Program Implementation Guidelines.

### Authority

*Proposition 39: California Clean Energy Jobs Act – 2013 Program Implementation Guidelines (guidelines)* in accordance with Proposition 39 (2012) and Senate Bill 73 (Committee on Budget and Fiscal Review, Chapter 29, Statutes of 2013), as amended by Senate Bill 97 (Committee on Budget and Fiscal Review, Chapter 357, Statutes of 2013) and adopted by the California Energy Commission at the December 19, 2013, Business Meeting.

### Who May Submit

LEAs who have been appropriated Proposition 39 award funds may submit an Energy Expenditure Plan to request for funds to implement eligible energy projects. These LEAs are listed at <http://www.cde.ca.gov/fg/aa/ca/prop39cceja.asp>. LEAs include county offices of education, school districts, charter schools, and state special schools. An expenditure plan submittal can include multiple eligible energy projects. An *eligible energy project* is defined as energy efficiency measures and/or clean energy installations in or at a school site. In general, all facilities within the LEA are eligible to receive Proposition 39 award funding. If an LEA is occupying a leased facility, the LEA needs to ensure the facility meets the conditions specified in the *guidelines*.

### When to Submit

LEAs may submit their Energy Expenditure Plans beginning in January 2014 after the *Energy Expenditure Plan Handbook*, electronic Expenditure Plan Forms A and B, the Utility Data Release Authorization form, and simple project calculators are posted on the Energy Commission Proposition 39 Web page. The Energy Commission strongly recommends that LEAs submit their Energy Expenditure Plan prior to installing any eligible energy projects. If the LEA begins project implementation before receiving Energy Commission approval, it does so at its own risk. The Energy Commission must approve the LEA's Energy Expenditure Plan before the California Department of Education (CDE) releases Proposition 39 program award funds.

The Energy Commission offers LEAs flexibility for submitting their Energy Expenditure Plans to request award funding. LEAs have the option to submit an Energy Expenditure Plan each

year or they may combine eligible energy projects that incorporate multiyear awards into a single Energy Expenditure Plan. The CDE calculates and allocates each LEA Proposition 39 award funding each fiscal year based on legislatively appropriated funds. LEAs can receive Proposition 39 award funding only as it becomes available each fiscal year of the five-year program. If the LEA's available award is not fully encumbered each year, the balance will remain for future Energy Expenditure Plan requests. The final encumbrance date for the Proposition 39 program is June 30, 2018.

LEAs are encouraged to submit their Energy Expenditure Plans as soon as energy projects have been identified to allow timely review and approval by the Energy Commission. This also allows for LEAs to meet their targeted eligible energy project implementation schedules for project implementation and to achieve energy savings as soon as possible.

## **What to Include in the Energy Expenditure Plan**

An uploaded energy expenditure plan must contain:

1. Expenditure Plan General Form A, CEC-9, (Form A) in Microsoft Excel®
2. Expenditure Plan Project Summary Form B, CEC-10, (Form B) in Microsoft Excel® – An LEA must complete and upload one Form B for each school or site (eligible energy project) listed on Form A. For example, if eligible energy projects are proposed at nine schools, the Energy Expenditure Plan must contain one Form A with nine schools or sites listed and nine Form Bs. Each Form B will include details specific to the eligible energy project at each of the nine schools or sites. Each eligible energy project may include one or multiple energy efficiency measures and/or clean energy installations in or at a school or site.
3. Utility Data Release Authorization Form, CEC-12, in PDF – An LEA must complete a Utility Data Release Authorization Form for every utility provider from which the LEA purchases electricity and/or natural gas. For example, if an LEA purchases electricity from the Sacramento Municipal Utility District (SMUD) and natural gas from Pacific Gas and Electric (PG&E), the LEA must complete two Utility Data Release Authorization Forms, one for SMUD and another for PG&E. The Utility Data Release Authorization Form is required to be submitted only with the first Energy Expenditure Plan that an LEA submits to the Energy Commission. This form(s) must be completed, printed, signed by the LEA authorized representative, then scanned and uploaded to the *Prop. 39 Energy Expenditure Plan System* link. The authorized representative is an LEA employee with authorization to execute the Energy Expenditure Plan and the Utility Data Release Authorization Form, and authority to direct or delegate the implementation of the eligible energy projects on behalf of the LEA. The LEA must forward the original signed Utility Data Release Authorization Form(s) to the respective utility providers.
4. Project Back-Up Documentation – Each Form B must include back-up calculations/analysis supporting the eligible energy project details an LEA provides in

Form B. Easily uploadable formats like Microsoft Word®, PDF, Microsoft Excel® can be uploaded.

- a. Energy Savings Calculators – The Energy Commission has developed energy savings calculators to assist LEAs with their simple projects. Please refer to Chapter 5 for a list of energy savings calculators. LEAs may use only the energy savings calculators for the simple projects listed in Chapter 5. LEAs do not need to submit a separate energy survey or audit for these simple projects. Filling out the calculators and submitting them to the Energy Commission are sufficient.
  - b. Energy Survey – An LEA must upload any applicable energy surveys that will validate the energy savings calculations in its Form B. LEAs do not need to submit an energy survey if they have used the energy savings calculators for their eligible energy projects.
  - c. Energy Audit – Upload any applicable energy audits, complying with the “Information Required for Energy Audits” found in Chapter 6, that will validate the energy savings calculations in Form B. LEAs do not need to submit an energy audit if they have used the energy savings calculators for their eligible energy projects.
5. Building Owner Certification to Transfer Energy Cost Savings to LEA, if applicable – To ensure an LEA in a leased facility receives the energy savings cost benefit of the Proposition 39 funded eligible energy project(s), a building owner certification is required if 1) an LEA leases a facility or building that does not have a separate meter and/or 2) an LEA leases a facility or building, and the lease payment includes the utility cost. If either of these conditions applies, the building owner must commit to transferring the energy savings of the eligible energy projects to the LEA tenant, either through a reduced lease payment or other form of monetary reimbursement. LEAs in a privately-owned leased facility who meet the two conditions mentioned above shall submit a Building Owner Certification to Transfer Energy Cost Savings to the LEA, in writing, signed and dated by the lessor, that certifies energy savings cost benefit to the LEA.

## **How to Upload an Energy Expenditure Plan to the Energy Commission Proposition 39 Database**

After the LEA has downloaded and completed their Energy Expenditure Plan, including gathering all the eligible energy project back-up documentation, the LEA must upload the files to the Energy Commission. Energy Expenditure Plans will NOT be accepted by mail, e-mail, fax, or courier delivery.

The Energy Commission has sent all LEAs the upload link for the submission of their Energy Expenditure Plans. The upload link was included in the “Welcome” e-mail blast that was sent to all LEA contacts listed in the California School Directory, and any secondary contacts previously reported to CDE during program launch. The person who will submit the Energy Expenditure Plan, must obtain the upload link from those contacts.

Once the LEA accesses the website via the upload link, the LEA must identify its LEA by entering its LEA county-district-school (CDS) code without spaces or hyphens. After this is done, the website will prompt the LEA with its LEA name and allow for the upload of files.

There are four uploading sections:

1. Expenditure Plan General Form A
2. Expenditure Plan Project Summary Form B
3. Utility Data Release Authorization Form
4. Project Back-Up Documentation

The LEA must upload its files to the appropriate section. Anything the LEA submits that is NOT an Energy Commission Form (1-3 above) can be uploaded as project back-up documentation (4). Project back-up documentation includes, but is not limited to, energy surveys (energy savings calculators), energy audits, energy bills, and building owner certification for leased facilities.

The upload process is crucial for the Energy Commission to process Energy Expenditure Plans. Failing to correctly upload the files will require the LEA to resubmit the complete Energy Expenditure Plan. The Energy Commission recommends naming all files appropriately to allow for easy identification, which should alleviate the need to upload again.

## **Where to Submit**

LEAs will use the link that the Energy Commission provided in the “Welcome” e-mail blast to submit their Energy Expenditure Plan. Refer to the “How to Upload the Energy Expenditure Plan to the Energy Commission Proposition 39 Database” section for detailed information on uploading your Energy Expenditure Plans. No Energy Expenditure Plan will be accepted by mail, e-mail, fax, or courier delivery. Only Energy Expenditure Plan uploaded via this link will be accepted.

## **What Documents and Information to Compile Before Completing Form A and Form B**

LEAs must gather and compile the following documents and information to complete Form A and Form B. An LEA may consider filling out their Form Bs first before filling out Form A since Form A is a summary of all the Form Bs an LEA will submit.

1. If an LEA uses energy surveys or energy audits, these need to be completed prior to filling out Form A and Form B. These include information such as descriptions of the existing and proposed equipment, energy and cost savings, and a proposed budget for project costs, which is information needed to complete Form A and Form B. LEAs will need to transfer this information from the energy surveys and energy audits to the forms, where applicable. The energy surveys and energy audits are required to be submitted as back-up documentation to support the forms.
2. For LEAs opting to use the Energy Commission's energy savings calculators to calculate energy savings for simple eligible energy projects they plan to implement, they must first complete the applicable calculator before completing Form A and Form B. Information from these calculators is required to complete both Form A and Form B.
3. LEAs must collect electric and gas utility bills from the previous fiscal year for all schools or sites where eligible energy projects will be implemented. This means that if you are submitting an Energy Expenditure Plan during fiscal year 2013-2014, you will need to collect the bills from fiscal year July 1, 2012, through June 30, 2013. Utility bill information is required to complete Form B.
4. LEAs that requested and received energy planning funds must provide a financial breakdown in Form A of how the planning funds are budgeted and how planning funds were actually spent for each of the four allowed categories.
5. LEAs must submit their entity information, including but not limited to CDS codes, charter school codes, and contact information of the LEA authorized representative and the LEA project manager.
6. Form A requires the LEA to estimate job creation benefits. These are mostly calculated fields based on the eligible energy project budgets entered by the LEA. If the LEA has already selected a contractor to implement its eligible energy project, it will need to obtain apprenticeship programs and trainee title information to include when completing Form A.

## **Whom to Contact for Assistance with Completing Form A and Form B**

The Energy Commission has established a Proposition 39 Hotline (toll-free for those in-state: 855-380-8722, and a toll line for those out of state: 916-653-0392. LEAs can call for questions about how to apply for Proposition 39 awards and how to complete Form A and Form B. LEAs can also e-mail questions to the Energy Commission Hotline staff at [Prop39@energy.ca.gov](mailto:Prop39@energy.ca.gov).

# CHAPTER 2: Instructions for Expenditure Plan General Form A

## Purpose

The Expenditure Plan General Form A (Form A) is one of two forms that an LEA completes and includes in the Energy Expenditure Plan. Form A provides a financial summary of how the LEA intends to spend its Proposition 39 award funds. Using Form A, an LEA must list the funds it intends to spend on energy planning activities. An LEA must also list the eligible energy projects planned for schools and/or sites along with the corresponding estimated costs. Form A also includes a calculator to estimate the jobs that will be created from the Energy Expenditure Plan implementation. In addition, each LEA must certify compliance with a list of requirements. **Complete only one Form A for each Energy Expenditure Plan.**

## Instructions

The following are the instructions for Form A. To navigate through Form A, either click on a field or use the “Tab” key on your keyboard. There are many calculated fields (shaded in gray) in Form A that will be automatically calculated based upon entries to the input fields. The LEA is required to complete only the input fields. Input fields also include drop-down instructions, which can be accessed by clicking on a field.

1. Applicant Information:

Fiscal year _____		Grant Amount Requested: \$ _____
Expenditure Plan Submittal Option: _____		Grant Balance Available: _____
<b>1. Applicant Information</b>		
Local Education Agency (LEA) Name: _____		Tier: _____
LEA CDS Code: _____		City: _____
Mailing Address: _____		Zip code: _____
LEA Authorized Representative: _____		Phone: _____
Title: _____		E-mail: _____
Project Manager: _____		Phone: _____
Title: _____		E-mail: _____

- a. *Grant Amount Requested*: This is an automatically calculated field of the Proposition 39 award amount requested in this Energy Expenditure Plan. The amount is electronically calculated based on your inputs in Section 3. Energy Manager and Training, and Section 4. Summary of Schools/Sites.

- b. *Fiscal Year*: This drop-down menu corresponds to the fiscal year associated with the Energy Expenditure Plan you are submitting. Any Proposition 39 award funds not spent are rolled over and combined with future fiscal years award funds.
- c. *Grant Balance Available*: Enter your LEA's total Proposition 39 award balance posted by CDE on its *Schedule of the Total Award Allocations for the Proposition 39 – California Clean Energy Jobs Act* <http://www.cde.ca.gov/fg/fo/r14/prop39ccea13result.asp> . If this Energy Expenditure Plan is submitted in fiscal year 2013-2014, the grant balance equals the total award amount remaining.
- d. *Expenditure Plan Submittal Option*: This is a drop-down menu. Select "Annual Award Energy Expenditure Plan" if this Energy Expenditure Plan covers one fiscal year. Select "Multiple-Year (bundled) Award Expenditure Plan" if this Energy Expenditure Plan covers two, three, four, or five fiscal years.
- e. *Local Education Agency (LEA) Name*: Enter the legal name of your LEA.
- f. *Tier*: This is a drop-down menu. Select the tier that matches your LEA's P-2 ADA listed in CDE's *Schedule of the Total Award Allocations for the Proposition 39 – California Clean Energy Jobs Act* for the fiscal year in which you are submitting this Energy Expenditure Plan.
  - Tier 1: 100 or fewer ADA
  - Tier 2: 101-1000 ADA
  - Tier 3: 1,001-1,999 ADA
  - Tier4: 2,000 or more ADA
- g. *LEA CDS Code*: Enter the 14-digit county-district-school code assigned to your LEA by CDE with no spaces or hyphens.
- h. *Mailing Address*: Enter your LEA's mailing address.
- i. *City*: Enter the city where your LEA is located.
- j. *Zip Code*: Enter your LEA's 5 + 4 digit zip code. If unavailable or unknown, enter your LEA's five-digit zip code.
- k. *LEA Authorized Representative*: Enter the name of the person authorized by your LEA to submit and sign an Energy Expenditure Plan(s) and other Proposition 39 documents to the Energy Commission. The authorized representative is an LEA employee with authorization to execute the Energy Expenditure Plan and the Utility Data Release Authorization Form, and authority to direct or delegate the implementation of the eligible energy projects on behalf of the LEA.
- l. *Phone*: Enter your LEA's authorized representative's telephone number.
- m. *Title*: Enter the work title of your LEA's authorized representative.

- n. *E-mail*: Enter the contact e-mail address of your LEA’s authorized representative.
- o. *Project Manager*: Enter the name of your LEA’s project manager who is the primary point of contact for this Energy Expenditure Plan.
- p. *Phone*: Enter the phone number of your LEA’s Energy Expenditure Plan project manager.
- q. *Title*: Enter the work title of your LEA’s Energy Expenditure Plan project manager.
- r. *E-mail*: Enter the contact e-mail address of your LEA’s Energy Expenditure Plan project manager.

2. Energy Planning Reservation Information:

2. Energy Planning Reservation Information (only available for fiscal year 2013-2014 onward)	
Did you request Energy Planning Funds? (If no, move on to next section)	_____
Budget for Energy Surveys and Energy Audits:	_____
Budget for Proposition 39 Program Assistance:	_____
Budget for Energy Manager:	_____
Budget for Training:	_____
Totals: \$	_____
Amount Spent for Energy Surveys and Energy Audits:	_____
Amount Spent for Proposition 39 Program Assistance:	_____
Amount Spent for Energy Manager:	_____
Amount Spent for Training:	_____
	\$ _____

Note: This section applies to LEAs that have requested and received planning funds in Fiscal Year 2013-14.

A Note on New Schools Commencing Instruction in 2013-2014 or later: For new schools commencing instruction in fiscal year 2013-14 or later, energy planning funds will be available in the first fiscal year of Proposition 39 funding eligibility, so long as prior year average daily attendance (ADA) counts are provided during the second principal apportionment reporting period. For example, a school that begins instruction in fiscal year 2013-14 can use fiscal year 2014-15 award funds for planning activities, provided 2013-14 ADA counts are available. So, this section will also apply to schools that request and receive planning funds in the first fiscal year of Proposition 39 award eligibility.

- a. *Did you request Energy Planning Funds? (If no, move on to next section)*: This is a drop-down menu. Select “yes” if your LEA requested planning funds during fiscal year 2013-2014. Select “no” if your LEA did not request planning funds, then move on to Section 3.
- b. *Budget for Energy Surveys and Energy Audits*: Of the total Proposition 39 award for planning funds allocated to your LEA (refer to CDE’s *Schedule of the Total Award Allocations for the Proposition 39 – California Clean Energy Jobs Act* <http://www.cde.ca.gov/fg/fo/r14/prop39cceja13result.asp> ), enter the portion budgeted for energy surveys and energy audits.

- c. *Amount Spent for Energy Surveys and Energy Audits:* Enter the total amount of your LEA's Proposition 39 award funds spent to date on energy surveys and energy audits.
- d. *Budget for Proposition 39 Program Assistance:* Enter the total Proposition 39 grant planning funds budgeted for program assistance activities, including but not limited to putting together the Energy Expenditure Plan as defined in the *guidelines* Table 2: Energy Planning Activities.
- e. *Amount Spent for Proposition 39 Program Assistance:* Enter the total amount of Proposition 39 grant planning funds that have been spent to date on program assistance activities as defined in the *guidelines* Table 2: Energy Planning Activities.
- f. *Budget for Energy Manager:* If you requested planning funds and budgeted a portion of it for an energy manager(s) as defined in the *guidelines* Table 2, Energy Planning Activities, enter the amount of energy planning funds budgeted on this energy manager(s).
- g. *Amount Spent for Energy Manager:* If you requested planning funds and used a portion of it for an energy manager(s) as defined in the *guidelines* Table 2, Energy Planning Activities, enter the amount of energy planning funds spent on this energy manager(s).
- h. *Budget for Training:* If you requested planning funds and budgeted a portion of it for energy-related training as defined in the *guidelines* Table 2, Energy Planning Activities, enter the amount of energy planning funds budgeted for these training expenditures.
- i. *Amount Spent for Training:* If you requested planning funds and used a portion of it for energy-related training as defined in the *guidelines* Table 2, Energy Planning Activities, enter the amount of energy planning funds spent for these training expenditures.
- j. *Totals:* The total amount of energy planning funds requested and the total amount of planning funds spent to date. These are calculated fields, and the total amounts will be automatically calculated based on provided in the input fields.

3. Energy Manager and Training:

3. Energy Manager and Training	
Are you hiring an Energy Manager with funds requested in this Expenditure Plan? _____	Amount requesting for Energy Managers: _____
Are you using Proposition 39 funds for energy related training costs? _____	Amount requesting for Training: _____

Note: This section relates to the funds you are requesting under this current Energy Expenditure Plan.

- a. *Are you hiring an Energy Manager with funds requested in this Expenditure Plan?* This drop-down menu indicates whether this Energy Expenditure Plan allocates award funds for energy manager(s).
- b. *Amount requesting for Energy Manager:* Enter the total amount of your LEA's Proposition 39 award funds requested for energy manager(s) in this Energy Expenditure Plan. Note the maximum amount is 10 percent of the annual award amount. For Year 2-5 only.
- c. *Are you using Proposition 39 funds for energy related training costs?* This drop-down menu indicates whether this Energy Expenditure Plan allocates award funds for energy-related training costs.
- d. *Amount requesting for Training:* Enter the total amount you are requesting for energy related training costs. Note the maximum amount is 2 percent of the annual award amount. For Year 2-5 only.

4. Summary of Schools/Sites:

4. Summary of Schools/Sites									
List all schools/sites where Proposition 39 funds from this Expenditure Plan will be used. Each school/site listed must have a Expenditure Plan Project Summary Form B completed and attached. If more than 20 sites are identified please use Additional School Sites Tab as necessary.									
School/Site	CDS #	Estimated Project Cost		School/Site	CDS #	Estimated Project Cost			
		Total Project Cost	Proposition 39 Share			Total Project Cost	Proposition 39 Share		
1				11					
2				12					
3				13					
4				14					
5				15					
6				16					
7				17					
8				18					
9				19					
10				20					
Estimated Total:						\$	-	\$	-

Note: If your LEA will list more than 20 schools or sites (energy projects) in this Energy Expenditure Plan, please use the "Additional School Sites" tab to add in these additional schools or sites. You must submit a corresponding Expenditure Plan Project Summary Form B (Form B) for each school or site listed on Form A. See instructions for Expenditure Plan Project Summary Form B in Chapter 3 of this handbook.

A Note on Access Compliance Requirements: Some energy projects may be required to include accessibility upgrades outside the scope-of-work area. LEAs may include the costs of these accessibility upgrades to their Prop. 39 projects as long as the Savings-to-Investment Ratio (SIR) requirement of 1.05 is met. To help LEAs determine the various requirements for eligible energy measures and possible exemptions, the Division of State Architect (DSA) provides resources and *guidelines* on its website at <http://www.dgs.ca.gov/dsa/Programs/progSustainability/prop39.aspx>.

- a. *School/Site*: List the name of each school or site where your LEA plans to implement an eligible energy project. The project may include one or multiple energy measures. You will explain the details of these projects on the corresponding Form B.
- b. *CDS #*: Enter the 14-digit county-district-school number, with no spaces or hyphens, of the school or site where energy projects will be implemented. The CDS # should match the CDS# provided in the corresponding Form B, School or Site Information section.
- c. *Estimated Project Cost*
  - *Total Project Cost*: Enter your estimated total cost for the eligible energy project associated with the school or site you have listed. The Total Project Cost is the total cost of the eligible energy project regardless of funding source. The amount in each *Total Project Cost* line must equal the Site Project Summary table of corresponding Form B.
  - *Proposition 39 Share*: Of the total project cost, enter the amount that will be funded by Proposition 39 award funding. This amount may be different from

the *Total Project Cost* if your LEA is using more than one funding source for the an eligible energy project. The *Proposition 39 Share* estimated amount of each school/site must equal the Site Project Summary table of the corresponding Form B.

- d. *Estimated Totals*: The estimated totals for Lines 1-20 (or more) *Total Project Cost* and *Proposition 39 Share* are automatically calculated for your LEA based on provided in the input fields.

5. Job Creation Estimates:

5. Job Creation Estimates			
Please fill in the corresponding budget amounts for each applicable type of project which the Proposition 39 grant funds will be used.			
Type of Project	Budget	Estimated Direct Job-Years Created	Please list any state-certified apprenticeship programs being used:
Energy Efficiency	_____	0	<div style="border: 1px solid black; height: 100px; width: 100%;"></div>
Renewable Energy	_____	0	
Clean Advanced Distributed Energy	_____	0	
Total:		0	
Apprenticeship information		Estimated Apprenticeship Job-Years Created	
Apprenticeships	_____	0	
Other Trainee Position Title	(Please use Additional Trainees tab as necessary)	Estimated Other Trainee Jobs Created	(Please use Additional Trainees tab as necessary)
_____		_____	
_____		_____	
_____		_____	
_____		_____	
Total:		0	Will this project be subject to a community benefits agreement, community workforce agreement, or other mechanism that defines project co-benefits?

Note: To obtain the budget totals, you will need to add the estimated total amounts of your LEA's Proposition 39 award to be spent in each energy category. You will need to pull this information from totals of all the Form B's in this Energy Expenditure Plan. Refer to each Form B, Section 3 (Energy Efficiency Project Summary, *Proposition 39 Share to be used for Measure Implementation*) for the "Energy Efficiency" budget for each eligible energy project. Refer to each Form B, Section 5 (Photovoltaic Measures, *Measure Cost*) column total for the "Renewable Energy" budget for each energy project.

- a. *Energy Efficiency – Budget*: Total the *Proposition 39 Share to be used for Measure Implementation* from Section 3. Energy Efficiency Project Summary, from all of the Form Bs in this Expenditure Plan and enter that total in the blank *Budget* line for *Energy Efficiency*.
- b. *Renewable Energy – Budget*: Total the *Measure Costs* from Section 5. Photovoltaic Measures from all of the Form Bs in this Energy Expenditure Plan and enter that total in the blank *Budget* line for *Renewable Energy*.
- c. *Clean Advanced Distributed Energy – Budget*: The estimated Proposition 39 award funds allocated to Clean Advanced Distributed Energy measures under this Expenditure Plan.

- d. *Estimated Direct Job-Years Created:* These fields will automatically calculate from budgeted amounts you entered in each Type of Project category.
- e. *Apprenticeships – Budget:* Enter the estimated Proposition 39 funds your LEA plans to allocate to apprenticeship positions under this Energy Expenditure Plan. If unknown, enter 0.
- f. *Estimated Apprenticeship Job-Years Created:* This is an automatically calculated field based on the budget you entered.
- g. *Other Trainee Position Titles:* Enter the titles of trainee positions your LEA will use in addition to apprenticeship positions. Please use the additional tab to list more trainee position titles. If unknown, enter 0.
- h. *Estimated Other Trainee Jobs Created:* Enter the number of Other Trainee Jobs created for each trainee classification. If unknown, enter 0.
- i. *Please list any state-certified apprenticeship programs being used:* This field is for the LEA to list all state-certified apprenticeship programs being used to implement energy efficiency measures. If unknown, enter 0.
- j. *Will this project be subject to a community benefits agreement, community workforce agreement, or other mechanism that defines project cobenefits?:* Please use the drop-down menu to indicate whether the project is subject to community benefits agreements, community workforce agreements, or other mechanisms that define project cobenefits. If unknown, leave blank.

6. Self-Certification:

6. Self-Certifications	
<input type="checkbox"/>	The LEA followed the Proposition 39 Guidelines regarding eligible energy project prioritization considerations.
<input type="checkbox"/>	The LEA followed the guidelines regarding sequencing of facility improvements.
<input type="checkbox"/>	The LEA commits to use the funds for the eligible energy project(s) approved in its energy expenditure plan.
<input type="checkbox"/>	The LEA commits that the information included in the application is true and correct based to the best of the LEA's knowledge.
<input type="checkbox"/>	The LEA commits that all California Environmental Quality Act (CEQA) requirements are completed.
<input type="checkbox"/>	The LEA will obtain DSA project approval as applicable pursuant to California Code of Regulations, Title 24.
<input type="checkbox"/>	The LEA acknowledges that the expenditures are subject to financial audit requirements (Public Resources Code Section 26206(e) and 26240(g)).
<input type="checkbox"/>	The LEA commits to complying with all reporting requirements.
Reminder: Please remember to include the signed Utility Data Release Authorization Form for your utility provider to release data to the Energy Commission	
TYPE Name of Authorized Representative: _____	Date: _____
Version 1.0	

Note: This section includes all certifications each LEA must certify. Each certification has a drop-down box where an LEA can select a “yes” or “no” response. The LEA must be able to certify to **all** the self-certifications to receive their Proposition 39 award.

- a. *The LEA followed the Proposition 39 Guidelines regarding eligible energy project prioritization considerations.* This certifies that your LEA followed the project prioritization guidelines (11 factors listed in the *guidelines*, Step 3, pages 16-17) when analyzing energy projects included in this Energy Expenditure Plan.
- b. *The LEA followed the guidelines regarding sequencing of facility improvements.* This certifies that your LEA followed the sequencing guidelines (*guidelines*, Step 4, page 18) when analyzing eligible energy projects included in this Energy Expenditure Plan.
- c. *The LEA commits to use the funds for the eligible energy project(s) approved in its energy expenditure plans.* This certifies that your LEA will commit to using the funds received for eligible energy projects approved in this Energy Expenditure Plan.
- d. *The LEA commits that the information included in the application is true and correct based to the best of the LEA's knowledge.* This certifies that your LEA has determined the provided information in this Energy Expenditure Plan and supporting documents are accurate to the best of the LEA's knowledge.
- e. *The LEA commits that all California Environmental Quality Act (CEQA) requirements are completed.* This certifies that the LEA has determined the eligible energy projects proposed in this Energy Expenditure Plan meet CEQA requirements.
- f. *The LEA will obtain DSA project approval as applicable pursuant to California Code Regulations, Title 24.* This certifies that all projects included in this Expenditure Plan meet DSA requirements, as applicable. DSA energy project construction compliance resources are found on page 31 of the *guidelines*.
- g. *The LEA acknowledges that the expenditures are subject to financial audit requirements (Public Resources Code Section 26206(e) and 26250(g)).* This indicates the LEA understands that expenditures are subject to financial audit requirements.
- h. *The LEA commits to complying with all reporting requirements.* This indicates the LEA will comply with Proposition 39 reporting requirements in Step 8 of the *guidelines*, page 27-29.
- i. *Signature:* Type in the name of the LEA authorized representative on the line provided under the /s/. The Energy Commission accepts this as an electronic signature. This form must be submitted electronically. Scanned forms will not be accepted. The authorized representative is an LEA employee with authorization to execute the Energy Expenditure Plan and the Utility Data Release Authorization Form, and authority to direct or delegate the implementation of the eligible energy projects on behalf of the LEA.
- j. *Date:* Enter the date Form A is signed by the LEA authorized representative.

# CHAPTER 3: Instructions for Expenditure Plan Project Summary Form B

## Purpose

The Expenditure Plan Project Summary Form B (Form B) is the second form an LEA must submit electronically to the Energy Commission for a complete Energy Expenditure Plan. Form B describes the eligible energy project proposed at each of the applicant's schools or sites. Each Form B includes the eligible energy project information for each school or site, including benchmarking, eligible energy project description, and energy savings calculations, which include a non-energy benefit adder. **One Form B must be completed and submitted for each school or site listed on the accompanying Form A** in the Energy Expenditure Plan. Form B will contain all the information required for each school site.

## Instructions

The following are the instructions for Form B. To navigate through Form B, either click on a field or use the "Tab" key on your keyboard. There are many calculated fields (shaded in gray) in Form B that will be automatically calculated based upon entries to the input fields. The LEA is required to complete only the input fields. Input fields also include drop-down instructions that can be accessed by clicking on a field.

1. School or Site Information:

Local Education Agency (LEA) Name: _____	
LEA CDS Code: _____	
<b>1. School or Site Information</b>	
School/Site Name: _____	Estimated Project Start Date: _____
School/Site CDS Code: _____	Estimated Project Completion Date: _____
School/Site Mailing Address: _____	City: _____ Zip Code: _____

- a. *Local Education Agency (LEA) Name:* Enter the legal name of the LEA. This must correspond to the LEA name information entered in Section 1, Applicant Information on Form A.

- b. *LEA CDS Code:* Enter the 14-digit county-district-school code assigned to the LEA by CDE with no spaces or hyphens. This must correspond to the LEA CDS Code entered in Section 1, Applicant Information on Form A.
- c. *School/Site Name:* Enter the name of the school or site where your LEA proposes to implement the eligible energy project. This must correspond to the school or site name provided in Section 4, Summary of Schools/Sites of Form A.
- d. *Estimated Project Start Date:* Enter the estimated date when your LEA plans to begin implementation of the eligible energy project. Please use the mm/dd/yyyy to enter the date.
- e. *School/Site CDS Code:* Enter the 14-digit county-district-school number of the school or site with no spaces or hyphens. This must correspond to the CDS number provided in Section 4, Summary of Schools/Sites section of Form A.
- f. *Estimated Project Completion Date:* Enter the estimated date when your LEA plans to complete the eligible energy project at this school or site. Please use the mm/dd/yyyy format to enter the date.
- g. *School/Site Mailing Address:* Enter the mailing address of the school or site where your LEA plans to implement this energy project.
- h. *City:* Enter the name of the city where this school or site is located.
- i. *Zip Code:* Enter the 5 +4 digit zip code of the school or site where this project is proposed. If the four digit code is not used or unknown, enter the school or site's five-digit zip code.

2. Benchmarking:

2. Benchmarking (Provide the following information from the previous fiscal year utility bills for the entire school/site)																				
Square Footage of School/Site: _____	Electric Utility: _____	Gas Utility: _____																		
Average Peak Demand (kW): _____	Electric Utility Account #: _____	Gas Utility Account #: _____																		
Total Annual Electric Use (kWh): _____	Energy Bill _____																			
Total Annual Electric Charges (\$): _____	Fiscal Year: _____																			
Total Annual Gas Use (therms): _____	Reminder: If the School/Site includes leased facilities, please include Building Owner Certification in backup documentation.																			
Total Annual Gas Charges (\$): _____	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">Energy Use Intensity Calculator</th> </tr> <tr> <th style="width: 33%;">Electricity</th> <th style="width: 33%;">Natural Gas</th> <th style="width: 33%;">Other Fuels</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">W/SF</td> <td style="text-align: center;">Therms/SF</td> <td style="text-align: center;">Gals/SF</td> </tr> <tr> <td style="text-align: center;">kWh/SF</td> <td style="text-align: center;">Cost/SF</td> <td style="text-align: center;">Cost/SF</td> </tr> <tr> <td style="text-align: center;">Cost/SF</td> <td></td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">Energy Costs/SF/Year:</td> <td style="text-align: center;">Energy Use(kbtu)/SF/Year:</td> </tr> </tbody> </table>		Energy Use Intensity Calculator			Electricity	Natural Gas	Other Fuels	W/SF	Therms/SF	Gals/SF	kWh/SF	Cost/SF	Cost/SF	Cost/SF			Energy Costs/SF/Year:		Energy Use(kbtu)/SF/Year:
Energy Use Intensity Calculator																				
Electricity	Natural Gas	Other Fuels																		
W/SF	Therms/SF	Gals/SF																		
kWh/SF	Cost/SF	Cost/SF																		
Cost/SF																				
Energy Costs/SF/Year:		Energy Use(kbtu)/SF/Year:																		
<b>Other Fuels</b>																				
Total Annual Propane Use (gals): _____																				
Total Annual Propane Charges (\$): _____																				
Total Annual Fuel Oil Use (gals): _____																				
Total Annual Fuel Oil Charges (\$): _____																				

- a. *Square Footage of School/Site*: Enter the approximate gross square footage of the school or site where the LEA plans to implement this eligible energy project. "Gross square footage" is the area of the school or site within exterior walls less any courtyards or other outdoor areas.
- b. *Average Peak Demand (kW)*: Enter the average peak demand of this school or site from the previous fiscal year electric bills. To determine this number, review the school or site's previous fiscal year bills. (If the Energy Expenditure Plan is submitted in fiscal year 2013-2014, use the bills from 2012-2013.) Calculate this number by averaging the peak demand values. If the school or site has multiple electric meters, then the peak demand of each meter should be summed before averaging. If the utility bills for this school or site do not include electric peak demand information, then leave this field blank.
- c. *Total Annual Electric Use (kWh)*: Enter the total annual electric consumption of this school or site from the previous fiscal year. First, calculate this value by adding the electric usage stated in each of the previous fiscal year electric bills. If the school or site has multiple electric meters, then add the annual electric usage for all meters on the school or site. Second, if the school or site has photovoltaic (PV) on-site electric production, this electric production also needs to be included in the total annual electric use for the previous fiscal year. LEAs may find this information in one of several ways. If the solar installation is a power purchase agreement (PPA), enter the purchased kWh from the PPA bills. Also, many LEAs may have school-owned PV systems. In this case, your solar production tracking systems can provide this information. Enter the total annual electric usage value on this line. If the school or site does not use electricity, enter 0.
- d. *Total Annual Electric Charges (\$)*: Enter the annual total electricity cost for the school or site from the previous fiscal year electric bills. A fiscal year is designated as July 1 – June 30 of a certain year. Calculate this value by adding the dollar charges for electricity stated in the previous fiscal year bills. If the school or site has multiple electric meters, then add the dollar charges for electricity for all meters on the school or site to obtain the correct dollar amount to enter on this line. If the school or site does not use electricity, enter 0.
- e. *Total Annual Gas Use (therms)*: Enter the annual total natural gas usage of the school or site from the previous fiscal year natural gas bills. Calculate this value by adding the natural gas usage stated in each of the previous fiscal year bills. If the school or site has multiple natural gas meters, then add the annual natural gas usage for all meters on the school or site to obtain the correct gas usage value to enter on this line. If the school or site does not use natural gas, enter 0.
- f. *Total Annual Gas Charges (\$)*: Enter the annual total natural gas cost for the school or site from the previous fiscal year natural gas bills. A fiscal year is designated as July 1 – June 30 of a certain year. Calculate this value by adding the dollar charges

- for natural gas stated in the previous fiscal year bills. If the school or site has multiple natural gas meters, then add the annual dollar charges for natural gas for all meters on the school or site to obtain the correct dollar amount to enter on this line. If the school or site does not use natural gas, enter 0.
- g. *Total Annual Propane Use (gals)*: Enter the total amount of propane in gallons used by the school or site from the previous fiscal year propane bills. Calculate this value by adding the gallons of propane usage stated in bills stated in the previous fiscal year bills. If the school or site has multiple propane services, then add the annual propane usage for all services to obtain the correct number of gallons to enter on this line. If the school or site does not use propane, enter 0.
  - h. *Total Annual Propane Charge (\$)*: Enter the total annual propane cost of the school or site from the previous fiscal year propane bills. A fiscal year is designated as July 1 – June 30 of a certain year. Calculate this value by adding the dollar charges for propane stated in the previous fiscal year bills. If the school or site has multiple propane services, then add the annual dollar charges for propane for all services to obtain the correct dollar amount to enter on this line. If the school or site does not use propane, enter 0.
  - i. *Total Annual Fuel Oil Use (gals)*: Enter the total amount of fuel oil used in gallons by the school or site from the previous fiscal year fuel oil bills. Calculate this value by adding the gallons of fuel oil usage stated in the previous fiscal year bills. If the school or site has multiple fuel oil services, then add the annual fuel oil usage for all services to obtain the correct number of gallons to enter on this line. If the school or site does not use fuel oil, enter 0.
  - j. *Total Annual Fuel Oil Charges (\$)*: Enter the total annual fuel oil cost of the school or site from the previous fiscal year fuel oil bills. A fiscal year is designated as July 1 – June 30 of a certain year. Calculate this value by adding the dollar charges for fuel oil stated in the previous fiscal year bills. If the school or site has multiple fuel oil services, then add the annual dollar charges for fuel oil usage for all services to obtain the correct dollar amount to enter on this line. If the school or site does not use fuel oil, enter 0.
  - k. *Electric Utility*: Enter the name of the electric utility provider for this school or site. Multiple providers may be entered on this line. If the school or site does not have an electric utility, leave this line blank.
  - l. *Gas Utility*: Enter the name of the natural gas, propane, or fuel oil provider for this school or site. Multiple providers may be entered on this line. If the school or site does not have a gas utility, leave this line blank.
  - m. *Electric Utility Account #*: Enter the account number(s) of the school or site provided by the electric utility provider. Multiple account numbers may be entered on this line. If the school or site does not have an electric utility, leave this line blank.

- n. *Gas Utility Account #*: Enter the account number(s) of the school or site provided by the natural gas, propane, or fuel oil utility provider. Multiple account numbers may be entered on this line. If the school or site does not have a gas utility, leave this line blank.
- o. *Energy Bill Fiscal Year*: Enter the fiscal year associated with the energy bills used to fill out the Benchmarking section of this Form B. Please use the drop-down menu to select the fiscal year. A fiscal year is designated as July 1 – June 30 of a certain year.
- p. *Reminder: If this School/Site is in a privately owned leased facility(ies), please include Building Owner Certification in backup documentation*: If the LEA is in a privately owned or leased facility that does not have a separate meter or the lease payment includes the utility cost, submit a certification from the building owner committing to transfer the cost savings from the energy project to the LEA tenant, through a reduced lease payment or other form of monetary reimbursement. If the school/site includes privately owned leased facilities, please use the drop-down menu to indicate the Building Owner Certification is included in the Energy Expenditure Plan.
- q. *W/SF: (watts per square foot)* This signifies the electricity demand intensity of the school or site. The value automatically calculates for you from the *Average Peak Demand* and *Square Footage of School/Site* you provide.
- r. *kWh/SF: (kilowatts per square foot)* This signifies the electricity use intensity of the school or site. The value automatically calculates for you from the *Total Annual Electric Use* and *Square Footage of the School/Site* you provide.
- s. *Cost/SF: (dollar cost per square foot)* This signifies the electric cost intensity of the school or site. The value automatically calculates for you from the *Total Annual Electric Charges* and *Square Footage of School/Site* you provide.
- t. *Therms/SF: (therms per square foot)* This signifies the natural gas use intensity of the school or site. The value automatically calculates for you from the *Total Annual Gas Use* and *Square Footage of School/Site* you provide.
- u. *Cost/SF: (cost of gas per square foot)* This signifies the natural gas cost intensity of the school or site. The value automatically calculates for you from the *Total Annual Gas Charges* and *Square Footage of School/Site* you provide.
- v. *Gals/SF: (gallons of propane and fuel oil per square foot)* This signifies the propane and fuel oil use intensity of the school or site. The value automatically calculates for you from the *Total Annual Propane Use*, *Total Annual Fuel Oil Use*, and *Square Footage of School/Site* you provide.



energy efficiency measure from the drop-down menu that most closely resembles the measure to be implemented.

- d. *Description*: Enter further description of the energy efficiency measure, if necessary. This field may be left blank.
- e. *Demand Savings (kW)*: Enter the demand savings from the information contained in the *Measure Savings Source* your LEA is using for this energy efficiency measure. If this energy efficiency measure has no demand savings, leave this field blank.
- f. *Annual Electric Savings (kWh)*: Enter the electric savings from information contained in the *Measure Savings Source* your LEA is using for this energy efficiency measure. If this energy efficiency measure has no electric savings, leave this field blank.
- g. *Annual Natural Gas Savings (therms)*: Enter the annual natural gas savings from information contained in the *Measure Savings Source* your LEA is using for this energy efficiency measure. If the energy efficiency measure has no natural gas savings, leave this field blank.
- h. *Annual Propane Savings (gallons)*: Enter the annual propane savings from information contained in the *Measure Savings Source* your LEA is using for this energy efficiency measure. If the energy efficiency measure has no propane savings, leave this field blank.
- i. *Annual Fuel Oil Savings (gallons)*: Enter the annual fuel oil savings from information contained in the *Measure Savings Source* your LEA is using for this energy efficiency measure. If the energy efficiency measure has no fuel oil savings, leave this field blank.
- j. *Annual Cost Energy Savings (\$)*: Enter the total annual energy cost savings from information contained in the *Measure Savings Source* your LEA is using for this energy efficiency measure. If the energy efficiency measure includes both electricity and fuel cost savings, include the total of these cost savings.
- k. *Measure Cost (\$)*: Enter the total cost for implementing this energy efficiency measure at this school or site.
- l. *Rebates & Grants (\$)*: Enter the total dollar amount of rebates and grant funds (other than Proposition 39 award funds) your LEA will apply to this energy efficiency measure. Rebates are considered utility rebates or other incentives that reduce the project cost. Grants are considered leveraged funding that does not need to be repaid by the LEA. An LEA may consider bond funding as grant funding, if the LEA is not directly responsible for the interest or debt repayment on the bond funding.

- j. *EEM SIR*: Form B automatically calculates the savings-to-investment ratio (SIR) for each energy efficiency measure based on the information you provide on this line. The value for this field will populate automatically.

4. Energy Efficiency Narrative Description:

4. Energy Efficiency Narrative Description
Please provide a narrative describing existing conditions, energy efficiency measures, and how these were prioritized. If a photovoltaic measure is being proposed on the site, please provide a description for why the site is a good candidate for a photovoltaic system.

Enter a description of the school’s or site’s overall energy efficiency measures being implemented. If you are also proposing a PV measure for this school or site, describe the energy efficiency measures previously implemented, and why this school or site is a good candidate for a PV measure.

5. Photovoltaic Measure:

5. Photovoltaic Measure							
Size (kW AC)	Demand Savings (kW)	Year 1 Production (kWh)	Year 1 Energy Cost Savings (\$)	Inverter Efficiency (%)	Measure Cost (\$)	Rebates & Grants (\$)	Measure SIR

Note: **This section is to be used only for LEA-owned PV systems.** To complete this section, the LEA will need to obtain information from its measure savings source. An example of a measure saving sources is an energy audit from a solar consultant or vendor or from the Energy Commission energy savings calculator.

- a. *Size (kW AC)*: Enter the alternating current (ac) power rating of the PV system proposed for installation at the school or site. Refer to the *Measure Savings Source* used for this energy measure.
- b. *Demand Savings (kW)*: Enter the demand savings associated with this PV system from information contained in the *Measure Savings Source* your LEA is using for this energy measure.
- c. *Year 1 Production (kWh)*: Enter the first year energy production of this PV system as projected in the *Measure Savings Source* your LEA is using for this energy measure. If you have a performance guarantee, enter the annual unit production in kWh/kWac. If you do not have a performance guarantee, enter 1,500 kWh/kWac. Multiply 1,500 kWh/kWac by the size (kWac.) This is a statewide average based on the California Public Utility Commission (CPUC) and the Energy Commission performance evaluations.
- d. *Year 1 Energy Cost Savings (\$)*: Enter the first year energy cost savings of this PV system as projected in the *Measure Savings Source* your LEA is using for this energy measure.
- e. *Inverter Efficiency (%)*: Enter the estimated inverter efficiency of this PV system from the information in the *Measure Savings Source* your LEA is using for this energy measure.
- f. *Measure Cost (\$)*: Enter the total cost to implement the PV system as projected in the *Measure Savings Source* your LEA is using for this energy measure.
- g. *Rebates & Grants (\$)*: Enter the total amount of rebates and grant funds (other than Proposition 39 award funds) that will be applied to the PV system measure. Rebates are considered utility rebates or other incentives that reduce the project cost. Grants are considered leveraged funding that does not need to be repaid by the LEA. An LEA may consider bond funding as grant funding, if the LEA is not directly responsible for the interest or debt repayment on the bond funding.
- h. *Measure SIR*: Form B automatically calculates the savings-to-investment ratio for the PV system measure based on the information you provide. The value for this field will populate automatically. This is a calculated value that is automatically calculated from the provided information.

*Power Purchase Agreement (PPA) with Third Party PV Developers:*

If an LEA chooses to use Proposition 39 funds to invest in the installation of clean energy projects using a PPA, the clean energy project must meet the cost-effectiveness SIR criteria defined below and the equipment must be installed on the school site benefiting from the generated clean energy.

The applicable SIR formula for a PPA with a third party PV developer is defined as:

<b>SIR</b>	=	$\frac{\text{NPV of LEA Cost Savings from PPA Discount}}{\text{NPV of LEA Electricity Cost Paid under PPA (including P39 contribution)}}$
------------	---	---

Note: When Prop 39 funds are used to pay for all or part of the LEA electricity cost under a PPA, the electricity savings and cost in the SIR formula shall be calculated based on the full term of the PPA.

**Assumptions and Definitions:**

- Energy Cost Escalation Rate = maximum 3 % (nominal)
- Discount Rate = 5 %
- Effective Useful Life (EUL) = 20 years
- PV Size (CEC kW AC rating) = Number of panels x PTC panel wattage x inverter efficiency
- NPV of LEA Cost Savings from PPA Discount: NPV of total energy cost savings realized over the life of the equipment. (must be based on the actual electric utility tariff schedule of the school site benefiting from the generated clean energy and include demand charges, if applicable)
- NPV of LEA Electricity Cost Paid under PPA agreement: NPV of total electricity cost paid to PPA developers over the life of the equipment.

The following information in Form B's PPA tab will be required for LEAs interested in executing a PPA with a third party PV developer.

Power Purchase Agreement						
Size (kW AC)	Demand Savings (kW)	Energy Escalation Rate (%)	Year 1 Production (kWh)	Year 1 Energy Cost Savings from PPA Discount (\$)	Year 1 LEA Electricity Cost Paid Under PPA (\$)	PPA SIR

- a. *Size (kW AC)*: Enter the alternating current (ac) power rating of the PV system proposed for installation at the school or site. kWac shall be calculated using the equation as shown in the assumptions section.
- b. *Demand Savings (kW)*: Enter the estimated demand savings associated with this PV system (note: demand savings can be highly variable due to site and weather factors).
- c. *Energy Escalation Rate (%)*: Enter the energy cost escalation rate that was agreed to in the PPA. The escalation rate should not exceed 3% nominal.
- d. *Year 1 Production (kWh)*: Enter the estimated annual electricity production in kWh.
- e. *Year 1 Energy Cost Savings from PPA Discount (\$)*: Enter the amount of electricity cost savings to be received from PPA discount by LEA. If the LEA electric tariff will be changed to a new tariff, the annual cost savings need to be calculated using the new tariff rate. The total cost savings shall not exceed the baseline electric bills minus the customer and meter charges.
- f. *Year 1 LEA Electricity Cost Paid Under PPA (\$)*: This is the electricity cost paid by the LEA to the PPA developer. This is considered to be the measure cost for the LEA to obtain the electricity cost savings from the PPA. Any non-electricity costs paid by the LEA using Proposition 39 funds, such as project development costs, must be included.
- g. *PPA SIR*: This SIR will be automatically calculated based on the PV production and cost information specified in a letter of intent.

**Letter of Intent**

If an LEA chooses to use Proposition 39 funds to invest in the installation of a clean energy project using a PPA, an LEA must include a Letter of Intent from a qualified developer in its Energy Expenditure Plan describing AT LEAST the following elements:

- Project or system size (capacity in kWac),
- PPA term,
- PPA energy rate, and any rate escalation (limited to three percent maximum, nominal),
- Anticipated rebate or incentive amount, and
- Estimated production (kWh/kWp) including assumed annual degradation rate and cost savings over the PPA term; and demonstrate that these savings meet the SIR.

PPAs must include a performance guarantee ensuring at least 95 percent of estimated production over at least a 5-year period and must have a performance and production guarantee for the life of the PPA term. In the event that actual production falls below this threshold, a developer must reimburse or compensate an LEA (at the applicable PPA rate) for the shortfall.

6. Site Project Summary:

6. Site Project Summary						
Total Demand Savings	-	Total Annual Fuel Oil Savings	-	Total Prop 39 Share	\$	-
Total Annual Electric Savings	-	Total Annual Cost Savings	\$			
Total Annual Natural Gas Savings	-	Total Project Cost	\$	Total Cost Paid Under PPA	\$	-
Total Annual Propane Savings	-	Total Rebates	\$			
						Savings-to-Investment Ratio (SIR)
						Version 2.0

- a. *Total Demand Savings*: This field is automatically calculated for you to reflect the total demand savings for the energy efficiency measures and PV system measures proposed for the school or site.
- b. *Total Annual Electric Savings*: This field is automatically calculated for you to reflect the total electric savings for the energy efficiency measures and PV system measures proposed for the school or site.
- c. *Total Annual Natural Gas Savings*: This field is automatically calculated for you to reflect the total natural gas savings for these energy efficiency measures proposed for the school or site.

- d. *Total Annual Propane Savings*: This field is automatically calculated for you to reflect the total propane savings for these energy efficiency measures proposed for the school or site.
- e. *Total Annual Fuel Oil Savings*: This field is automatically calculated for you to reflect the total fuel oil savings for these energy efficiency measures proposed for the school or site.
- f. *Total Annual Cost Savings*: This field is automatically calculated for you to reflect the total energy cost savings associated with energy efficiency measures, both electricity and fuel, and PV system measures proposed for the school or site.
- g. *Total Project Cost*: The total project cost of energy efficiency measures and PV measures proposed for the school or site. This is a calculated field that is automatically calculated based on information provided in the input fields.
- h. *Total Rebates*: This is automatically calculated to reflect the total amount of rebates of energy efficiency measures and PV measures proposed for the school or site based on the information you provide in the input fields.
- i. *Total Prop 39 Share*: This amount is automatically calculated for you to reflect the total amount of Proposition 39 award funds to be used for the energy measures proposed to be implemented for the energy project at this school or site.
- j. *Total Cost Paid Under PPA*: This amount is automatically calculated for you to reflect the total amount spent under PPAs occurring at the school or site.
- k. *Savings-to-Investment-Ratio (SIR)*: The SIR is automatically calculated for you and reflects the combined SIR for all of the measures proposed for the energy project at this school or site. The SIR must equal 1.05 or higher for the school or site to be eligible to receive Proposition 39 award funds.

# **CHAPTER 4:**

## **Instructions for the Utility Data Release Authorization Form**

### **Purpose**

Public Resources Code 26240(a) requires LEAs receiving Proposition 39 fund awards to authorize their electric and gas utilities to release certain past and ongoing energy usage and billing record data to the Energy Commission. The Utility Data Release Authorization Form is used by the LEA to authorize and instruct its electric and/or gas utility(ies) to share one fiscal year of historical energy usage and billing record data immediately preceding the fiscal year the LEA submits its first Energy Expenditure Plan through the fiscal year ending in 2023. The utilities will transmit this data to the Energy Commission annually by December 31 of each year.

### **Instructions**

The Energy Commission's Utility Data Release Authorization Form, titled AUTHORIZATION TO RELEASE CUSTOMER INFORMATION TO THE CALIFORNIA ENERGY COMMISSION ON A CUSTOMER'S BEHALF FOR PROPOSITION 39 IMPLEMENTATION ONLY, can be downloaded along with the other forms required for the Energy Expenditure Plan. LEAs are highly encouraged to use the Energy Commission's Utility Data Release Authorization Form, which the utilities have agreed to accept as a valid authorization to release energy usage and billing record data to the Energy Commission. If your LEA chooses NOT to use the Energy Commission Utility Data Release Authorization form, your LEA will be responsible for submitting additional information mandated under Senate Bill 73 and Senate Bill 97. To avoid delays in processing your Energy Expenditure Plan, LEAs should use the Energy Commission's Utility Data Release Authorization Form.

The Energy Commission cannot approve an LEA's Energy Expenditure Plan if it does not include completed and signed Utility Data Release Authorization Forms for each of its electric and gas utilities. The form has two sides: 1) the front, which contains the authorization to release customer information language, and 2) the back, which includes lines for each account or service account included in the authorization. After completing the Utility Data Release Authorization Forms, scan a copy of each one to include in the Energy Expenditure Plan your LEA will upload to the Energy Commission, and forward the originals to the applicable utilities.

### **First Page of the Form**

The top of the front of the Utility Data Release Authorization Form contains three lines to complete:

- *Name and Title (If Applicable)*: Insert the name and the title of your LEA's authorized representative. This should be the same individual who is the authorized representative on Form A, Section 1. Applicant Information.
- *Name of Customer of Record*: Insert the name of the utility customer as it appears on the bills from this utility. This may be the name of your LEA, for example, XYZ School District
- *Mailing Address, City, State, and Zip*: Insert the mailing address as it appears on the bills from this utility.

The beginning of the next line of the Utility Data Release Authorization Form contains a field, *[Utility Name]*. Insert the name of the electric or gas company to which your LEA will forward this authorization, for example, Southern California Edison.

The next three paragraphs contain no lines or fields for your LEA to complete.

The first line of the last paragraph contains a blank line. Insert the name of your LEA's authorized representative. This will be the same name inserted in the first line of the form.

The bottom of the front page contains five blanks to complete:

- *Authorized Customer Signature*: The authorized representative must sign (wet signature) the original Utility Data Release Authorization Form to forward to each utility.
- *Telephone Number*: Insert the telephone number of the authorized representative.
- *Day*: Insert the day of the signature, for example, 3<sup>rd</sup>.
- *Month and Year*: Enter the month and year of the signature.
- *City and State Where Executed*: Enter the name of the city and state where the authorization is signed.

## Second Page of the Form

The back of the Utility Data Release Authorization Form, titled "Accounts/Service Accounts Included in this Authorization," is to be used by your LEA to list all of its accounts with the applicable utility. For example, if your LEA has seven accounts with your electric utility, you will complete seven lines. The information for each line includes:

- *CDS or Charter School Number*: List the county-district-school or charter school number, without spaces or hyphens, associated with the utility account or service account number.
- *Account/Service Address*: List the street number and name address or post office box number where the utility bill is received.
- *City*: List the city associated with the account/service address listed.
- *Account/Service Account Number*: Some utilities use the term "account," and others use "service account." Enter the account or service account number associated with the information entered on this line.

# CHAPTER 5: Instructions for the Energy Savings Calculators

## Purpose and Background

The Energy Commission provides these energy savings calculators to assist LEAs with their simple energy efficiency projects. These tools will calculate energy use intensities (EUI) for benchmarking, energy savings, energy cost savings, simple payback, and savings-to-investment ratios (SIR). Designed in Microsoft Excel®, the calculators may be used by LEAs to implement simple projects without a professional energy survey or audit.

All assumptions and formulas used in the calculators comply with the *Proposition 39: California Clean Energy Jobs Act – 2013 Program Implementation Guidelines (guidelines)*. If the *guidelines* are revised in the future, the Energy Commission will revise the calculators accordingly.

The calculators include 10 simple lighting measures, 8 heating, ventilation, and air-conditioning (HVAC) and mechanical measures, 2 plug-load measures, and 1 simple PV project. In addition, a calculator for energy use intensity is included to assist LEAs to benchmark their schools.

**If an LEA opts to use the Energy Commission energy savings calculator for any measure listed below, an LEA must submit the entire calculator tool even if only one measure is used. An LEA must use one entire calculator tool for each school or site. Do not combine measures from different schools or sites.**

**Energy savings is calculated based on the energy cost in the benchmarking tab. Therefore, if an LEA opts to use this energy savings calculator to quantify their savings, they must complete the benchmarking tab.**

The energy efficiency measures are listed in four categories as follows:

### *Lighting Energy Efficiency Measures:*

- ECM 1            Replace incandescent light with compact fluorescent
- ECM 2            Replace incandescent light with light-emitting diode (LED) light
- ECM 3 & 4        Convert incandescent/CFL exit sign to LED exit sign
- ECM 5 & 6        Convert T12 fluorescent to T8 with electronic ballast or LED lamps
- ECM 7            Replace 32 watt T8 lamps with 28 watt T8 lamps
- ECM 8 & 9        Replace exterior mercury vapor/HPS with LED/induction lights
- ECM 10           Install occupancy control for intermittently occupied rooms

### *HVAC/Mechanical Efficiency Measures:*

- ECM 11           Replace old packaged/split HVAC unit (up to 65KBtu) with high-efficiency HVAC
- ECM 12           Replace old heat pump (up to 65 kBtu) with high-efficiency heat pump
- ECM 13A          Replace boiler with high-efficiency condensing boiler

- ECM 13B Replace furnace with high-efficiency condensing furnace
- ECM 14 Seal existing leaky duct
- ECM 15 Install variable speed drive for pumps and fans
- ECM 16 Replace manual thermostat with programmable thermostat
- ECM 17 Replace old motor with premium efficiency motor
- ECM 18 Replace storage water heater with gas-fired tankless water heater

*Plug-Load Efficiency Measures:*

- ECM 19 Install smart strip/PC management to control computers/printers
- ECM 20 Install vending machine occupancy control

*Simple Photovoltaic (PV) Self-Generation Project*

- ECM 21 Install PV System

The assumptions and energy impacts used in the calculator for lighting and HVAC measures were derived from energy impact data supplied by the Database for Energy Efficiency Resources (DEER). In many cases, the baseline energy information was based on performance mapping conducted by each investor-owned utility (IOU). Many factors were considered in this baseline performance mapping, including building type, building size, building vintage, equipment efficiency, operating hours, zip code, and climate zone for Education-primary schools, Education-secondary schools, and Education- portable classroom buildings.

## Benchmarking Calculator

Benchmarking helps LEAs determine how well schools or sites are performing in terms of energy efficiency. Benchmarks can quickly identify schools or sites with the greatest potential for energy savings based on their energy usage. Energy savings can result in dollar savings that can be budgeted for educating children.

The purpose of the benchmarking calculator is to produce the EUI for electricity, natural gas, liquid fuel, and cost per square foot per year for each school or site. LEAs may use this calculator to calculate EUI for benchmarking every school or site to identify and likely prioritize schools with the most energy savings potential.

Use the EUI calculator to benchmark electricity, natural gas, liquid fuels usage, and cost per square foot per year by entering the annual energy use data. Your LEA can perform the EUI calculation for each school or site and select the best candidate locations for energy efficiency retrofits. The calculator can also be used to calculate the average cost of electricity, natural gas, and liquid fuel for energy efficiency measure evaluations.

Based on information you enter for your LEA, the following tables are automatically produced:

1. Energy Use Intensity Calculator Table
2. Average Cost Table

Values generated from the Benchmarking calculator may be used to complete Form A and Form B.

## Energy Savings Calculator

The energy savings calculator is separated into four (4) category tabs:

1. Lighting measure calculators
2. HVAC/mechanical measure calculators
3. Plug-load measure calculators
4. Simple PV calculator.

Each calculator contains a list of questions for the LEA to respond to. Most of the questions can be answered by school maintenance staff. Once the responses are filled in, the annual savings and cost savings, simple payback, and SIR will automatically be calculated.

Based on the information your LEA provides, the following tables are automatically produced and are located to the right of the input calculators:

1. Energy Savings Summary – a set of automatically calculated fields that show savings in peak demand, energy use, therms, gallons of gas, energy cost savings , simple payback in years, and SIR.
2. Annual Energy Savings Analysis – This table automatically generates a summary of pre- and post- energy measure installation conditions.
3. Life Cycle Cost Analysis/Net Present Values Analysis – based on the Effective Useful Life (EUL) for each energy measure, taken from the DEER.
4. Total Summary Table (in a separate tab in the calculator) – a summary of all the energy efficiency projects your LEA proposes to implement. Once your LEA completes the calculators applicable to your proposed projects, all energy savings data will be automatically populated in the “Total-Summary” tab of the spreadsheet, and calculations for bundled energy measures will be obtained.

Values generated in the energy efficiency measure calculators may be used to complete Form A and Form B.

# Instructions

The following are the instructions to use the Energy Efficiency Calculators:

1. Benchmarking Calculator:

- a. Before entering the required information into the benchmarking calculator, an LEA must perform the following steps.
  - Gather the past fiscal year’s 12-months of utility billing data for electricity and natural gas for the school or site where your LEA proposes to implement energy efficiency projects. If your electricity or natural gas is supplied by a third party, obtain the annual billing data from the third-party supplier.
  - If the school or site uses liquid fuel such as propane or fuel oil for heating, gather the usage and cost data for the same 12-month period.
  - If the school or site has multiple meters or third-party services (e.g. propane), add together the annual usage and costs to come up with a total aggregate amount.

b. School Information:

School Information	
School Name	
School CDS Code	
Mailing Address	
Electric Utility:	
Gas Utility:	
Billing Period (Fiscal Year)	
Total Square Footage of School	-

- 1.) *School Name:* Enter the name of the school or site where your LEA proposes to implement the energy efficiency measures.
- 2.) *School CDS Code:* Enter the 14-digit county-district-school number of the school or site with no spaces or hyphens. This should correspond to the CDS number provided in the Summary of Schools/Sites section of Form A and in the School/Site Information section of Form B.

- 3.) *Mailing Address: School/Site Mailing Address:* Enter the mailing address of the school or site where your LEA proposes to implement the energy efficiency measures.
- 4.) *Electric Utility:* Enter the name of the electric utility provider of the school or site.
- 5.) *Gas Utility:* Enter the name of the natural gas, propane, or fuel oil provider of the school or site. Leave this line blank if it is not applicable to the school or site.
- 6.) *Billing Period (Fiscal Year):* Enter the fiscal year associated with the energy bills used to fill out the calculators. A fiscal year is designated as July 1 – June 30. If your energy expenditure plan is submitted in fiscal year 2013-2014, use energy bills from fiscal year 2012-2013.
- 7.) *Total Square Footage of School:* Enter the approximate total gross square footage of all the school buildings, excluding outside covered walkways or porch areas.

c. Electricity

<b><i>Electricity</i></b>	
<b>Average Maximum Demand (kW):</b>	<b>0</b>
<b>Annual PV Electricity Production(kWh)</b>	<b>0</b>
<b>Electricity Purchase from Utility(kWh)</b>	<b>0</b>
<b>Total Annual Electric Use (kWh):</b>	<b>0</b>
<b>Total Annual Electric Charges (\$)</b>	<b>0</b>

- 1.) *Average Maximum Demand:* Enter the average maximum demand of the school from the previous fiscal year electric bills. Calculate this value by averaging the peak demand stated in the previous fiscal year bills. If a school or site has multiple electric meters, sum the peak demand of all the meters before averaging. If the demand information is not provided in the monthly bills, then leave this field blank.
- 2.) *Annual PV Electricity Production (kWh):* Enter the total electricity generated in the previous fiscal year from a PV system, if you have PV on-site. This information can be obtained from the solar tracking system or production data stored in the inverter or an energy monitoring system or a PPA electric bill.

- 3.) *Electricity Purchase from Utility (kWh)*: Enter the total electricity purchased in the previous fiscal year from your local utility. If the school or site has multiple meters, sum the total electricity purchased from your local utility from all meters.
- 4.) *Total Annual Electric Use (kWh)*: Enter the total annual electric consumption of the school or site from the previous fiscal year. First, if the school or site has PV on-site electric production, this electric production also needs to be included in the total annual electric use for the previous fiscal year. LEAs may find this information in one of several ways as mentioned in #2 above. If the solar installation is a PPA, enter the purchased kWh from the PPA bills. Also, many LEAs may have school-owned PV systems. In this case your solar production tracking systems can provide this information. Second, obtain the electric usage stated in the previous fiscal year electric bills. If the school or site has multiple electric meters, include the annual electric usage for all meters at the school or site. Enter the total annual electric usage value on this line.
- 5.) *Total Annual Electric Charges (\$)*: Enter the annual total electricity cost for the school or site from the previous fiscal year electric bills. Calculate this value by adding the electric charges stated in the previous fiscal year bills. If the school or site has multiple electric meters, include the electric charge for all meters at the school or site.

d. Natural Gas

<i>Natural Gas</i>	
<b>Total Annual Natural Gas Use (therms):</b>	-
<b>Total Annual Gas Charges (\$):</b>	\$ -

Note: Due to DEER limitations, information on only one type of fuel can be keyed into the energy savings calculator. If an LEA uses multiple fuels, enter the information of the primary fuel and enter the fuel use (therms) and fuel charges (\$) as a footnote in the spreadsheet. Energy Commission staff will make the necessary adjustments to the fuel savings.

- 1.) *Total Annual Natural Gas Use (therms)*: Enter the annual total natural gas usage of the school or site from the previous fiscal year natural gas bills. Calculate this value by adding the natural gas usage stated in the previous fiscal year bills. If the school or site has multiple natural gas meters, include the annual natural gas usage for all meters at the school or site. If the school or site does not use natural gas, enter 0.
- 2.) *Total Annual Gas Charges (\$)*: Enter the annual total natural gas cost for the school or site from the previous fiscal year natural gas bills. Calculate this value by adding the natural gas charges stated in the previous fiscal year

bills. If the school or site has multiple natural gas meters, include the annual natural gas charges for all meters at the school or site. If a third-party supplier is used, enter the total cost from the third-party cost for commodity and the transportation cost from the local utility. If the school does not use natural gas, enter 0.

e. Other Fuels:

<b><i>Other Fuels (if applicable)</i></b>	
<b>Total Annual Propane Use(gals):</b>	<b>0</b>
<b>Total Annual Propane Charges(\$):</b>	<b>\$ -</b>
<b>Total Annual Fuel Oil Use(gals):</b>	<b>0</b>
<b>Total Annual Fuel Oil Costs(\$):</b>	<b>\$ -</b>

- 1.) *Total Annual Propane Use (gals):* Enter the total annual propane usage in gallons by the school or site from the previous fiscal year propane bills. Calculate this value by adding the propane usage stated in the previous fiscal year bills. If the school has multiple propane services, include the annual propane usage for all services. If the school does not use propane, enter 0.
- 2.) *Total Annual Propane Charges (\$):* Enter the total annual propane cost for the school from the previous fiscal year propane bills. Calculate this value by adding the propane charges stated in the previous fiscal year bills. If the school or site has multiple propane services, include the annual propane charge for all services. If the school does not use propane enter 0.
- 3.) *Total Annual Fuel Oil Use (gals):* Enter the total annual fuel oil usage in gallons by the school from the previous fiscal year fuel oil bills. Calculate this value by adding the fuel oil usage stated in the previous fiscal year bills. If the school or site has multiple fuel oil services, include the annual fuel oil usage for all services. If the school does not use fuel oil enter 0.
- 4.) *Total Annual Fuel Oil Costs (\$):* Enter the total annual fuel oil cost for the school from the previous fiscal year fuel oil bills. Calculate this value by adding the fuel oil usage stated in the previous fiscal year bills. If the school or site has multiple fuel oil services, include the annual fuel oil usage for all services. If the school does not use fuel oil enter 0.

2. Lighting Measures Calculators:

To simplify the information required from the school or site staff, calculators for lighting measures use the “assumed lamp ratio” and “average lighting hours” from the DEER. Average energy impacts (i.e. kWh, kW, and therms) were calculated from education buildings (i.e. primary schools, secondary schools, and portable classrooms) from the DEER in all four IOUs (Pacific Gas and Electric, Southern California Edison, Southern California Gas, and San Diego Gas & Electric) service territories.

To obtain the average energy impact for each measure, the Energy Commission performed baseline performance mapping, including building type, building size, building vintage, equipment efficiency, zip code, and climate zones. The interactive effects between energy efficiency measures were also considered in the energy savings calculation. For example, an interior lighting retrofit measure would reduce the building electricity consumption, but it also requires additional fuel to make up the heat loss from the lighting retrofit.

If your school or LEA can identify the proposed equipment quantity and wattage, the calculator will generate all the energy savings and SIR for the measures you are considering.

*ECM 1: Replace incandescent lights with compact fluorescent*

ECM 1	Replace incandescent light with compact fluorescent light	Fill in your answers
Measure 1	Quantity of incandescent lights to be replaced with CFLs?	0
	What is the total wattage of all new CFL lamps?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	0

Incandescent, halogen lamps, or flood lights are very inefficient. If a school or site uses incandescent or halogen lamps or flood lights, these lights can be replaced with compact fluorescent lights (CFL) to save energy. These replacement measures can save more than 70 percent of the energy from the existing light fixtures.

- 1.) *Quantity of incandescent lights to be replaced with CFLs?* Enter the quantity of the incandescent, halogen, and flood lights to be replaced with compact fluorescent light lamps. Both screwed-in and hardwired lamps are permitted.
- 2.) *What is the total wattage of all new CFL Lamps?* Enter the total wattage (in watts) of the CFL lamps you plan to install at the school or site. For example, if installing one 13 watt CFL and one 17 watt CFL, the total wattage is 30 watts.

- 3.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor, to install the CFL lamps.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the CFL lamps, if known and available.

ECM 2: *Replace incandescent lights with light-emitting diodes (LED) lights*

ECM 2	Replace incandescent light with LED light	Fill in your answers
Measure 2	Quantity of incandescent bulbs to be replaced with LED lights?	0
	What is the total wattage of all new LED lamps?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	0

Incandescent, halogen lamps, and flood lights are inefficient. If a school or site uses incandescent or halogen lamps or flood lights, these lights can be replaced with LED lights to save more than 70 percent of the energy from the existing light fixtures. In addition, LED lights have a long expected useful life.

- 1.) *Quantity of incandescent lights to be replaced with LED lights?* Enter the quantity of the incandescent, halogen, and flood lights you plan to replace with LED lamps. Both screwed-in and hardwired lamps are permitted.
- 2.) *What is the total wattage of all new LED lamps?* Enter the total wattage (in watts) of the LED lamps you plan to install at the school or site. For example, if installing one 10 watt LED and a 30 watt LED, the total lamp wattage is 40 watts.
- 3.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor, to install the LED lamps.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the LED lamps, if known and available.

ECM 3 & 4: Convert incandescent/CFL exit sign to LED exit sign

ECM 3&4	Convert incandescent/CFL exit sign to LED exit sign	Fill in your answers
<b>Measure 3</b>	Quantity of CFL exit signs to be replaced with LEDs?	0
	What is the wattage of each new LED exit sign?	0
	What is the total installed cost for this measure?	0
	What is the utility rebate for this measure?	0
<b>Measure 4</b>	Quantity of incandescent exit signs to be replaced with LEDs?	0
	What is the wattage of each new LED Exit sign?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	0

Incandescent or compact fluorescent lights in exit signs are very inefficient. If the school or site uses incandescent or CFL lights in exit signs, these lights can be replaced with LED lamps to save more than 60 percent to 90 percent of the energy from the existing light fixtures.

Measure 3:

- 1.) *Quantity of CFL exit signs to be replaced with LEDs?* Enter the quantity of the CFL exit signs proposed to be replaced with LED exit signs. Both retrofit kits and fixture replacements are permitted.
- 2.) *What is the wattage of the new LED exit sign?* Enter the wattage of the new LED exit signs.
- 3.) *What is the total installed cost for this measure?* Enter the estimated total cost for installing the LED exit signs, including materials and labor.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the LED exit signs, if known and available.

Measure 4:

- 1.) *Quantity of incandescent exit signs to be replaced with LEDs?* Enter the quantity of the incandescent exit signs proposed to be replaced with LED exit signs.
- 2.) *What is the wattage of the new LED exit sign?* Enter the wattage of the new LED exit sign(s).
- 3.) *What is the total installed cost for this measure?* Enter the estimated total cost for installing the LED exit signs, including materials and labor.

- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the exit signs, if known and available.

*ECM 5 & 6: Convert T12 fluorescent to T8 with electronic ballast or LED lamps*

ECM 5&6	Convert T12 fluorescent to T8 with electronic ballast or LED Lamps	Fill in your answers
	<b>This ECM is for 4-foot linear fluorescent or 2 foot U-tube retrofit. If 8-foot fluorescent is converted to two 4-foot, multiply the quantity of lamp by two.</b>	
<b>Measure 5</b>	Quantity of 34 watt T12 lamps to be replace with T8?	-
	How many 40 watt T12 lamps will be replaced with T8?	-
	What is the new T8 lamp wattage?	32
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -
<b>Measure 6</b>	Quantity of 34 watt T12 lamps to be replace with LED lamps?	0
	Quantity of 40 watt T12 lamps to be replaced with LED lamps?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

Linear T12 fluorescent lights (approximately 1½ inch in diameter) are an older generation technology and are very inefficient. If a school still uses T12 lamps with magnetic ballasts, these lights should be replaced with newer T8 lamps with electronic ballasts or LED lamps to save energy. T8 fluorescent lights are 1 inch in diameter. These measures can save more than 25 percent to 60 percent of the energy from the existing light fixtures. Use ECM 5 & 6 for 4-foot linear fluorescents or 2-foot U-tube fluorescent light retrofits only. If the school or site you are evaluating uses 8-foot fluorescents and would like to convert to two 4-foot T8 or LED lights, multiply the quantity of lamps by two.

**Measure 5:**

- 1.) *Quantity of 34 watt T12 lamps to be replaced with T8?* Enter the quantity of 34 watt T12 lamps with magnetic ballasts to be replaced with T8 lamps and electronic ballasts. These 34 watt lamps are labeled as 34 watt energy-saving (ES) or energy-efficient (EE) lamps. Both retrofit kits and fixture replacements are permitted. For example, if you plan to retrofit 50 2-lamp fixtures, enter 100. If there are no 34 watt lamps, enter 0.
  
- 2.) *How many 40 watt T12 lamps will be replaced with T8?* Enter the quantity of the 40 watt T12 lamps with magnetic ballasts you plan to replace with T8 lamps and electronic ballasts. Note that 40 watt T12 lamps were once typical, but are no longer in common use. Both retrofit kits and fixture replacements are permitted. If there are no 40 watt lamps, enter 0.

- 3.) *What is the new T8 lamp wattage?* Enter the total wattages of the new T8 lamps you plan to install.
- 4.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor, to install the T8 lamps.
- 5.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the T8 lamps, if known and available.

Measure 6:

- 1.) *Quantity of 34 watt T12 lamps to be replaced with LED lamps?* Enter the quantity of 34 watt T12 lamps you plan to replace with LED lamps. If there are no 34 watt lamps, enter 0.
- 2.) *Quantity of 40 watt T12 lamps to be replaced with LED lamps?* Enter the quantity of the 40 watt T12 lamps you plan to replace with LED lamps. If there are no 40 watt lamps, enter 0.
- 3.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor, to install the LED lamps.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the LED lamps, if known and available.

ECM 7: Replace 32 watt T8 lamps with 28 watt T8 lamps

ECM 7	Replace 32 Watt T8 lamps with 28 Watt T8 Lamps	Fill in your answers
	Quantity of 32 watt T8 lamps to be replaced?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

The newer generation fluorescent lamps use about 15 percent less energy and produce about the same amount of lumen output compared to older T8 lamps. Most of the 32 watt T8 lamps with instant start electronic ballast can be replaced with 28 watt energy savings lamps.

- 1.) *Quantity of 32 watt T8 lamps to be replaced?* Enter the quantity of 32 watt T8 lamps to be replaced with 28 watt T8 lamps.

- 2.) *What is the total installed cost for this measure?* Enter the estimated total cost including materials and labor.
- 3.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the lamps, if known and available.

*ECM 8 & 9: Replace exterior mercury vapor/HPS with LED induction lights*

ECM 8&9	Replace exterior mercury vapor/HPS with LED/Induction lights	Fill in your answers
<b>Measure 8</b>	Quantity of mercury vapor fixtures to be replaced?	0
	What is the total wattage of all new LED or Induction lamps?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -
<b>Measure 9</b>	Quantity of HPS fixtures to be replaced?	0
	What is the total wattage of all new LED or Induction lamps?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

Older-generation, high-intensity discharge lights, such as mercury vapor and high-pressure sodium (HPS) lights, are inefficient and cannot be used with dimming control. The new induction and LED lights are able to generate more visible lumens, have longer life, can work with staged or dimming controls are more energy-efficient and can save from 30 percent to 50 percent of energy use.

**Measure 8:**

- 1.) *Quantity of mercury vapor fixtures to be replaced?* Enter the quantity of mercury vapor lights to be replaced with LED or induction lights.
- 2.) *What is the total wattage of all new LED or Induction lamps?* Enter the total wattage of the new LED or induction lights. For example, if installing one 30 watt LED light and one 70 watt LED light, the total wattage is 100 watts.
- 3.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the lamps, if known and available.

Measure 9:

- 1.) *Quantity of HPS fixtures to be replaced?* Enter the quantity of the high0-pressure sodium lights to be replaced with LED or induction lights.
- 2.) *What is the total wattage of all new LED or Induction lamps?* Enter the total wattage of the new LED or induction lights. For example, if installing one 70 watt LED light and one 100 watt LED parking lot light, the total wattage is 170 watts.
- 3.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the lamps, if known and available.

ECM 10: *Install occupancy control for intermittently occupied rooms*

ECM 10	Install occupancy control for intermittently occupied rooms	Fill in your answers
	Quantity of occupancy sensors to be installed?	0
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

Many staff offices, break rooms, bathrooms, and classrooms are occupied intermittently. The lights in these rooms are often left on. Occupancy sensor controls can be used to turn off these lights when no movement or body heat is detected after an interval of time. The sensor could be wall-mounted or ceiling-mounted occupancy sensors. The amount of achieved energy savings by turning off the lights in unoccupied spaces depends on the number of lights, type of lights, and hours of reduced usage in a space.

- 1.) *Quantity of occupancy sensors to be installed?* Enter the number of occupancy sensors to be installed (both wall-mounted and ceiling-mounted sensors of any sensing technology).
- 2.) *What is the total installed cost for this measure?* Enter the estimated total cost for installing the occupancy sensors, including materials and labor.
- 3.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the occupancy sensors, if known and available.

### 3. HVAC and Mechanical Measures Calculators:

The following calculators can be used to calculate energy savings for some of the HVAC and mechanical energy efficiency measures.

The assumptions and energy impacts used in the calculators for HVAC measures were derived from data supplied by DEER. In many cases, the baseline energy information was based on the performance mapping conducted by each IOU. Many factors were considered in this baseline performance mapping, including building type, building size, building vintage, equipment efficiency, operating hours, zip code, and climate zone for education-primary school, education-secondary school, and education-portable classroom buildings.

In general, the SIR for HVAC replacement measures is lower than 1.05. Stand-alone HVAC measures may not meet SIR requirements. An LEA has the option to bundle HVAC replacement measures with other short-payback energy efficiency measures such as lighting to increase the total combined SIR for the school or site energy project. As long as the total combined SIR exceeds 1.05, the bundled measures may be approved.

#### *ECM 11: Replace old packaged/split HVAC units with high efficiency HVAC*

ECM 11	Replace old packaged/split HVAC unit with high efficiency HVAC	Fill in your answers
	<b>This calculator only applies to AC up to 65KBtu or 5.4 tons</b>	
	Quantity of AC to be replaced with SEER 13 unit?	0
	Quantity of AC to be replaced with SEER 14 unit?	0
	What is the total AC tonnage to be replaced with SEER 13 unit?	0
	What is the total AC tonnage to be replaced with SEER 14 unit?	0
	What is the IOU (or nearest IOU) area the unit is installed?	PGE
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

This calculator applies only to air-conditioning (AC) units up to a cooling capacity of 65,000 Btu/hr (or roughly 5.4 tons) with a SEER 13 or SEER 14 efficiency rating due to DEER database limitations.

- 1.) *Quantity of AC to be replaced with SEER 13 unit?* Enter the quantity of the AC units to be replaced with SEER 13 units. If not applicable, enter 0.
- 2.) *Quantity of AC to be replaced with SEER 14 unit?* Enter the quantity of the AC units to be replaced with SEER 14 units. If not applicable, enter 0.

- 3.) *What is the total AC tonnage to be replaced with SEER 13 unit?* Enter the total tonnage of the AC units with SEER 13 efficiency rating to be installed. If installing two 5 ton units, the total tonnage is 10 tons. If not applicable, enter 0.
- 4.) *What is the total AC tonnage to be replaced with SEER 14 unit?* Enter the total tonnage of the AC units with SEER 14 efficiency rating to be installed. If installing two 5 ton units, the total tonnage is 10 tons. If not applicable, enter 0.
- 5.) *What is the IOU (or nearest IOU) area the unit is installed?* Select the nearest IOU utility where the AC is to be installed. If you are in a San Diego Gas & Electric service territory (SDG&E), select SDG&E. If you are a SMUD customer, select PG&E.
- 6.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor.
- 7.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the HVAC units, if known and available.

*ECM 12: Replace old heat pump (HP) with high efficiency heat pump*

ECM 12	Replace old heat pump with high efficiency heat pump	Fill in your answers
	<b>This calculator only applies to heat pump up to 65KBtu or 5.4 tons</b>	
	Quantity of HP to be replaced with SEER 13 (HSPF 7.7) unit?	0
	Quantity of HP to be replaced with SEER 14 (HSPF 8.3) unit?	0
	Quantity of HP to be replaced with SEER 15 (HSPF 8.8) unit?	0
	What is the total HP tonnage to be replaced with SEER 13 unit?	0
	What is the total HP tonnage to be replaced with SEER 14 unit?	0
	What is the total HP tonnage to be replaced with SEER 15 unit?	0
	What is the IOU (or nearest IOU) area the unit is installed in?	PGE
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

The cooling energy savings calculation approach for heat pump systems is similar to that of the packaged AC systems. The heating seasonal performance factor (HSPF) for an AC SEER 13 unit is assumed to be 7.7. The HSPF for an AC SEER 14 unit is assumed to be increased proportionally to 8.3, and the HSPF for an AC SEER 15 unit is 8.8. The higher the HSPF, the more efficient it is.

This calculator applies only to heat pumps up to 65,000 Btu/hr (or about 5.4 tons) with a SEER 13, SEER 14, or SEER 15 efficiency rating.

- 1.) *Quantity of HP to be replaced with SEER 13 (HSPF 7.7) unit?* Enter the quantity of heat pump units with a SEER 13 efficiency rating to be installed.
- 2.) *Quantity of HP to be replaced with SEER 14 (HSPF 8.3) unit?* Enter the quantity of heat pump units with a SEER 14 efficiency rating to be installed.
- 3.) *Quantity of HP to be replaced with SEER 15 (HSPF 8.8) unit?* Enter the quantity of heat pump units with a SEER 15 efficiency rating to be installed.
- 4.) *What is the total HP tonnage to be replaced with SEER 13 unit?* Enter the total tonnage of the heat pump units with SEER 13 efficiency rating to be installed. For example, if installing two 5 ton and two 4 ton units, the total tonnage is 18 tons.
- 5.) *What is the total HP tonnage to be replaced with SEER 14 unit?* Enter the total tonnage of the heat pump units with SEER 14 efficiency rating to be installed. For example, if installing two 5 ton and two 4 ton units, the total tonnage is 18 tons.
- 6.) *What is the total HP tonnage to be replaced with SEER 15 unit?* Enter the total tonnage of the heat pump units with SEER 15 efficiency rating to be installed. For example, if installing two 5 ton and two 4 ton units, the total tonnage is 18 tons.
- 7.) *What is the IOU (or nearest IOU) area the unit is installed in?* Select the nearest IOU utility where the AC is to be installed. For example, if you are in an SDG&E service territory, select SDG&E. If you are a SMUD customer, select PG&E.
- 8.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor.
- 9.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the HVAC units, if known and available.

ECM 13A: Replace boiler with high efficiency condensing boiler

ECM 13A	Replace boiler with high efficiency condensing boiler	Fill in your answers
	Quantity of boiler(s) to be replaced with AFUE 92-94 unit?	0
	Quantity of boiler(s) to be replaced with AFUE 95-97 unit?	0
	What is the total kBtu/hr of the new AFUE92-94 units?	-
	What is the total kBtu/hr of the new AFUE95-97 units?	-
	What is the IOU (or nearest IOU) area the unit is installed in?	PGE
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

Older boilers are of a noncondensing type and have lower heat recovery exchangers. The efficiency of the old noncondensing boilers varies from 78 percent to 80 percent. A new condensing boiler is able to recover additional heat from the flue gas and can achieve annual fuel use efficiency (AFUE) of up to 97 percent. To simplify the efficiency category, the calculator segregates the new condensing boiler into two categories: condensing boilers with an AFUE from 92 percent to 94 percent and condensing boilers with an AFUE from 95 percent to 97 percent. This efficiency rating can be obtained from the equipment vendor's boiler cut sheet.

- 1.) *Quantity of boiler(s) to be replaced with an AFUE 92-94 unit?* Enter the quantity of condensing boilers to be installed with an AFUE or heat recovery efficiency from 92 percent to 94 percent. If none, enter 0.
- 2.) *Quantity of boiler(s) to be replaced with an AFUE 95-97 unit?* Enter the quantity of condensing boilers to be installed with an AFUE or heat recovery efficiency from 95 percent to 97 percent. If none, enter 0.
- 3.) *What is the total kBtu/hr of the new AFUE 92-94 units?* Enter the total kBtu/hr of the new AFUE 92-94 unit. For example, if installing two 250,000 Btu/hr condensing boilers with an AFUE of 92 percent to 94 percent, the total kBtu/hr is 500. If there are no boilers to be installed in this category, enter 0.
- 4.) *What is the total kBtu/hr of the new AFUE 95-97 units?* Enter the total kBtu/hr of the new AFUE 95-97 units. If there are no boilers to be installed in this category, enter 0.
- 5.) *What is the IOU (or nearest IOU) area the unit is installed in?* Select the nearest IOU utility where the boiler is to be installed. For example, if you are in an SDG&E service territory, select SDG&E. If you are a SMUD customer, select PG&E.

- 6.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor.
- 7.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the boiler units, if known and available.

*ECM 13B: Replace furnace with high efficiency condensing furnace*

ECM 13B	Replace furnace with high efficiency condensing furnace	Fill in your answers
	Quantity of furnace(s) to be replaced with AFUE 92-94 unit?	0
	Quantity of furnace(s) to be replaced with AFUE 95-97 unit?	0
	What is the total kBtu/hr of the new AFUE92-94 units?	-
	What is the total kBtu/hr of the new AFUE95-97 units?	-
	What is the IOU (or nearest IOU) area the unit is installed in?	PGE
	What is the total installed cost for this measure?	\$ -
	What is the utility rebate for this measure?	\$ -

This calculator is very similar to the condensing boiler calculator (ECM 13A). The only difference is that the EUL for furnaces is 15 years rather than 20 years for boilers.

- 1.) *Quantity of furnace(s) to be replaced with an AFUE 92-94 unit?* Enter the quantity of condensing furnaces to be installed with an AFUE or heat recovery efficiency from 92 percent to 94 percent. If none, enter 0.
- 2.) *Quantity of furnace(s) to be replaced with an AFUE 95-97 unit?* Enter the quantity of condensing furnaces to be installed with an AFUE or heat recovery efficiency from 95 percent to 97 percent. If none, enter 0.
- 3.) *What is the total kBtu/hr of the new AFUE 92-94 units?* Enter the total kBtu/hr of the new AFUE 92-94 unit. For example, if installing three 75,000 Btu/hr condensing furnaces with an AFUE of 92 percent to 94 percent, the total kBtu/hr is 225. If there are no furnaces to be installed in this category, enter 0.
- 4.) *What is the total kBtu/hr of the new AFUE 95-97 units?* Enter the total kBtu/hr of the new AFUE 95-97 units. If there are no furnaces to be installed in this category, enter 0.
- 5.) *What is the IOU (or nearest IOU) area the unit is installed in?* Select the nearest IOU utility where the AC is to be installed. For example, if you are in an SDG&E service territory, select SDG&E. If you are a SMUD customer, select PG&E.

- 6.) *What is the total installed cost for this measure?* Enter the estimated total cost, including materials and labor.
- 7.) *What is the utility rebate for this measure?* Enter the utility rebate amount for the furnace units, if known and available.

*ECM 14: Seal existing HVAC leaky ducts*

ECM 14	Seal existing HVAC leaky duct	Fill in your answers
	How many total tons of AC where ducts will be sealed?	0
	What is the total installed cost?	0
	What is the utility rebate for this measure?	0

Many old single-zone packaged AC and heat pump systems use duct tape for all the joints and registers. In many leakage tests, the leaked volume could be as high as 40 percent among the supply and return ducts. These leaky ducts could be tested and sealed to reduce the leaked volume down to as low as 18 percent. Many local utilities also provide rebates to perform this service.

- 1.) *How many total tons of AC where ducts will be sealed?* Enter the total tonnage of single-zone AC units where air ducts or distribution systems will be sealed. For example, for four 5 ton AC units where ducts will be sealed, the total tonnage is 20 tons.
- 2.) *What is the total installed cost?* Enter the estimated total cost, including materials and labor.
- 3.) *What is the utility rebate for this measure?* Enter the utility rebate amount, if known and available.

*ECM 15: Install variable speed drives for pumps and fans*

ECM 15	Install variable speed drive for pumps and fans	Fill in your answers
	What is the total motor horsepower that will have VSD?	0
	What is the total installed cost?	\$ -
	What is the utility rebate for this measure?	0

Constant speed motors for pumps and fans are running continuously, whether the zone temperature has been achieved or not. Variable speed drives (VSD) can reduce the speed of the pumps and fans when the zone temperature is achieved. Therefore, a significant amount of energy savings can be realized. VSDs can reduce the energy consumption

during part-load operating conditions. Therefore, the lower the motor speed, the higher the energy savings.

- 1.) *What is the total motor horsepower that will have VSD?* Enter the total motor capacity in horsepower (hp) where variable speed drive controls will be installed. If installing VSDs for two 10 hp motors, the total motor horsepower is 20 hp.
- 2.) *What is the total installed cost?* Enter the estimated total cost, including materials and labor.
- 3.) *What is the utility rebate for this measure?* Enter the utility rebate amount, if known and available.

*ECM 16: Replace manual thermostat with programmable thermostat*

ECM 16	Replace manual thermostat with programmable thermostat	Fill in your answers
	Quantity of old thermostats to be replaced?	0
	What is the total installed cost?	0
	What is the utility rebate for this measure?	0

Many facilities still use old on/off thermostats. The HVAC equipment controlled by the on/off thermostats could be running continuously if it is not turned off manually. The new setback, programmable, smart, or network thermostat can be programmed to turn these HVAC units off according to facility schedules or by resetting the zone temperature set point so the HVAC units can be controlled when the zone is not occupied. Significant energy savings can be realized for both heating and cooling operations.

- 1.) *Quantity of old thermostats to be replaced?* Enter the quantity of old thermostats to be replaced with setback, programmable, or network thermostats.
- 2.) *What is the total installed cost?* Enter the estimated total cost, including materials and labor.
- 3.) *What is the utility rebate for this measure?* Enter the utility rebate amount, if known and available.

ECM 17: Replace old motors with premium efficiency motors

ECM 17	Replace old motor with premium efficiency motor	Fill in your answers
	What is the total premium motor horsepower capacity to be installed?	0
	What is the total installed cost?	0
	What is the utility rebate for this measure?	0

Older motors can be still operating, but they are not energy-efficient. Because of technology improvements, new premium efficiency motors are more efficient and more compact. Motors that run continuously for 24 hours a day, such as swimming pool pumps or hot water circulation pumps, are good candidates for this retrofit.

- 1.) *What is the total premium motor horsepower capacity to be installed?* Enter the total premium efficiency motor capacity in horsepower to be installed. For example, if installing two 20 hp motors, the total motor horsepower capacity is 40 hp.
- 2.) *What is the total installed cost?* Enter the estimated total cost, including materials and labor.
- 3.) *What is the utility rebate for this measure?* Enter the utility rebate amount, if known and available.

ECM 18: Replace storage water heater with gas-fired tankless water heater

ECM 18	Replace storage water heater with gas-fired tankless water heater	Fill in your answers
	Quantity of storage heater to be replaced with new instantaneous water heater?	0
	What is the total Btu per hour capacity of the old water heater?	0
	What is the total installed cost?	0
	What is the utility rebate for this measure?	0

Some facilities use storage hot water heaters for small hot water use. The standby loss alone is significant. By converting to instantaneous or tankless hot water heaters, the facility can improve the thermal recovery efficiency and reduce the standby loss of the hot water heater.

- 1.) *Quantity of storage heater to be replaced with new instantaneous water heater?* Enter the quantity of storage heaters to be replaced with a new instantaneous water heater.
- 2.) *What is the total Btu per hour capacity of the old water heater?* Enter the estimated total capacity of the storage water heater. For example, if replacing two 50,000 Btu/hr units, enter 100,000.

- 3.) *What is the total installed cost?* Enter the estimated total cost, including materials and labor.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount, if known and available.

4. Plug Load Measures Calculators:

*ECM 19: Install smart strip/PC management to control computers/printers*

ECM 19	Install smart strip/PC management to control computers/printers	Fill in your answers
Measure 19	How many smart strips or PC management tools will be installed?	0
	What is the proposed computer control?	Smart strip
	What is the total installed cost?	\$ -
	What is the utility rebate for this measure?	\$ -

Some computers and printers are not turned off at the end of the day or during weekends but are left running continuously. By installing a computer management software or “smart strip,” the computers or printers can be turned to sleep mode when they are not used over a certain period.

- 1.) *How many smart strips or PC management tools will be installed?* Enter the quantity of smart strips or PC management tools to be installed.
- 2.) *What is the proposed computer control?* Select the type of control device to be installed.
- 3.) *What is the total installed cost?* Enter the estimated total cost, including materials and labor.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount, if known and available.

ECM 20: Install vending machine occupancy control

ECM 20	Install vending machine occupancy control	Fill in your answers
Measure 20	Quantity of vending miser controls to be installed in beverage machines?	0
	Quantity of vending miser controls to be installed in snack machines?	0
	What is the total installed cost?	\$ -
	What is the utility rebate for this measure?	\$ -

Typical vending machines for beverages and snacks run continuously. In addition to lights, beverage machines have a small refrigerator to keep the beverages cold. Vending miser controls can be installed to reduce energy use when there is no occupancy detected.

- 1.) *Quantity of vending miser controls to be installed in beverage machines?* Enter the quantity of vending misers to be installed in beverage machines.
- 2.) *Quantity of vending miser controls to be installed in snack machines?* Enter the quantity of vending misers to be installed in snack machines.
- 3.) *What is the total installed cost?* Enter the estimated total cost, including materials and labor.
- 4.) *What is the utility rebate for this measure?* Enter the utility rebate amount, if known and available.

5. Photovoltaic System (PV) Calculator:

ECM 21	Installing Photovoltaic System	Fill in your answers
	How many PV panels will be installed?	0
	What is the PTC (PVUSA Test Con.) Wattage of each panel?	0
	What is the name plate efficiency of the inverter?	0%
	What is the total name plate capacity of the inverter?	0
	Did you obtain the PV rebate reservation from your utility?	NONE
	*If your rebate is Performance Based Incentive (PBI) rebate, what is the approved amount?	\$ -
	*If your rebate is Expected Performance Based Buydown (EPBB) rebate, what is the approved amount?	\$ -
	What is the total project cost without rebate?	\$ -
	Are you switching your rate to a new time-of-use rate?	Yes

This simple calculator for installing PV systems applies only to school-owned PV projects. Because of the initial costs, low or no rebate amounts and the inability of schools to claim tax credits, the savings to investment ratio for a PV project may not pass the SIR requirement of 1.05. However, a school has the option to bundle a PV system with other short payback energy efficiency measures to increase the total SIR. As long as the total combined SIR exceeds 1.05, the bundled measures may be approved and funded up to the grant amount.

The calculator assumes that the potential PV project is sized properly (that is, sized only to save up to the facility's prior-year electricity bill, excluding customer and meter charges). In addition, the calculator also assumes that a net energy metering agreement will be signed with the utility.

For a PV system to maintain maximum production, regular maintenance and cleaning are required. It further assumes annual maintenance cost to be 0.2 percent of project cost. Based on PV monitoring data and on the PV vendor warranty, annual PV production degradation rate is assumed to be 0.7 percent. The life-cycle cost analysis assumes that inverters will be replaced every eight years. The calculator uses a statewide average of 1,500 kWh for each installed kWac.

- 1.) *How many PV panels will be installed?* Enter the quantity of PV panels to be installed.
- 2.) *What is the PTC (PVUSA Test Con.) Wattage of each panel?* Enter the PVUSA test condition (PTC) rating in DC watts for the selected panels. This PTC DC wattage rating is generally used for rebate calculations.
- 3.) *What is the name plate efficiency of the inverter?* Enter the nameplate efficiency rating of the inverter(s) to be installed. For example, if installing a certified inverter with 95 percent efficiency rating, enter 95.

Note: Determining PV capacity:

PV capacity in alternating current (AC) will be automatically calculated using this formula: PV Capacity (Energy Commission AC rating) = Number of panels x PTC panel wattage x inverter efficiency

Electricity production will be calculated using this AC capacity based on an average generation per kW from Energy Commission and CPUC monitoring data.

- 4.) *What is the total name plate capacity of the inverter?* Enter the nameplate capacity of the inverter(s) to be installed. For example, if installing two 20 kW inverters, enter 40 kW. The inverter capacity for continuous operation has to be greater than the maximum capacity of the PV panels.
- 5.) *Did you obtain a PV rebate reservation from your utility?* Select the appropriate response from the drop down menu. If you do not have an approved rebate amount for your utility, enter "NONE."
- 6.) *\*If your rebate is Performance Based Incentive (PBI) rebate, what is the approved amount?* Enter the approved PBI amount in \$/kWh. Rebates will be paid annually for five years, based on the annual kWh generated.
- 7.) *\*If your rebate is Expected Performance Based Buydown (EPBB) rebate, what is the approved amount?* Enter the approved EPBB amount. Rebates will be paid in one lump sum. The California Solar Initiative (CSI) program (<http://csi-trigger.com/>) will be offered until the allocated incentive budget for each program administrator territory has been spent.
- 8.) *What is the total project cost without rebate?* Enter the estimated total cost for installing the PV system, including material and labor, excluding the rebate.
- 9.) *Are you switching your rate to a new time-of-use rate?* If the school is not on the time-of-use (TOU) rate schedule, the school has the option to change its rate schedule to a TOU schedule. If the school decides to do so, simply select "Yes" from the drop-down menu.

## **CHAPTER 6:**

# **Information Required for Energy Audits**

## **Purpose**

The Energy Commission uses energy audits submitted by the LEA to review and validate the energy savings and SIR calculations in the Energy Expenditure Plan. In an effort to expedite the review of proposed eligible energy projects for which energy audits have been completed, the Energy Commission has prepared a concise format for LEAs to use when submitting these energy audits as back up documentation. Audit documentation submitted in a format different from that described below will result in the need to resubmit the information or a much longer review time, resulting in delay in Energy Expenditure Plan approvals. LEAs who do not use the Energy Commission energy savings calculators as backup documentation to validate their energy savings and SIR calculations must use the format outlined below.

## **Information Required**

An energy audit must consist of the following parts:

1. Facility Background
2. Energy Efficiency Measure (EEM) Summaries
3. Grants and Incentives
4. Appendices
  - a. Appendix A
  - b. Appendix B

The following is a discussion of each part of the energy audit:

### **Facility Background**

Prepare one study or savings analysis for each school in the Energy Expenditure Plan (EEP) and keep each school's analysis in a separate file.

Based on the survey of the school buildings and interviews with the school staff, provide a brief description of the existing condition of the facility, energy using equipment, energy use in each of the following categories:

- Utility costs, rate schedule and consumptions for each school;
- Age, square footage and typical hours of the buildings;
- Age, efficiency, current hours of operation and controls of the energy using equipment.

- Size, age, annual production and condition of the onsite generation equipment (such as PV and cogeneration) if applicable.
- Benchmarking.

### Energy Efficiency Measure (EEM) Summaries

Provide a description of the proposed EEMs here. Describe the EEMs in each end-use category separately. If the EEM is recommended only in one end-use area, skip over other end-use sections.

Please include one section describing the existing equipment problems and its energy use and one section describing the recommended retrofit to mitigate the problem and how the energy savings are obtained. Prepare a table for each EEM summarizing the energy and energy cost savings (as shown in following table).

Energy Efficiency Measure	Demand Savings (kW)	Electricity Savings (kWh/yr)	Electricity Cost Savings (\$/yr)	Natural Gas or Fuel Savings (therms or gal/yr)	Natural Gas or Fuel Cost Savings (\$/yr)	Annual Cost Savings	Installed Measure Cost
Total							

The following is the information required for the following end use areas:

#### 1. Building Envelope

- A detailed model or engineering calculation if insulation, window shade, window replacement, cool roof or other building envelope measure is considered.
- A description of the existing building envelope condition and the proposed retrofit or replacement measure in the study, including quantity, square footage, orientation, U-value and/or shading heat gain coefficient improvement, etc.
- Assumptions and output for the calculation method and the cost savings.
- A summary of the model run for the pre- and post- retrofit case in the energy audit’s Appendix B, if a building simulation model is used.

#### 2. Lighting

- A room-by-room survey of lighting systems at each school site.
- A description of quantity, wattage, operating hours and current controls of the existing lighting systems and recommended modifications in the study. Separate

fixture retrofit measures from lighting control measures and re-lamping measures as each measure has a specific Effective Useful Life (EUL).

- A table for each lighting measure type (e.g., fixture retrofit, occupancy sensors, or re-lamping measure, etc.) in the energy audit's Appendix B.

If the baseline kWh use for all lights exceeds 35% of the annual kWh consumption, please provide a brief energy balance for the school. The purpose for the energy balance calculation is to make sure the baseline energy use and energy savings are reasonable.

### 3. HVAC

- A survey of the HVAC system and associated equipment (such as circulation pumps, air handlers, economizers, cooling tower and controls) for each school.
- A discussion of the condition, age, quantity, size, efficiency and controls (or operating hours) of the existing HVAC equipment and problems obtained from the school staff in the pre-retrofit section.
- A description of how the recommended measure(s) or proposed modifications would improve the system efficiency and save energy. If a retro-commissioning measure is considered, it needs to be linked to a hardware installation measure. Soft energy savings from resetting indoor temperature or schedule may be temporary and could be easily lost due to school override. However, continuous commissioning with a written contract with the school to maintain the operation of the equipment is allowed.

Select the efficiency measure from the measure pull-down menu on Form B carefully because the EUL for each measure may be different. Premium efficiency motor and variable speed drive are classified under the "Other" category in the efficiency measure pull down menu.

If the baseline kWh use for all HVAC equipment exceeds 50% of the annual kWh consumption, provide a brief energy balance for the school. The purpose for the energy balance calculation is to make sure the baseline energy use and energy savings are reasonable.

If an HVAC measure has multiple sources of savings such as savings from SEER efficiency improvement and reduced hours of operation, provide incremental savings after each savings function. Many control and VFD measures save energy during part load operation or an unoccupied period and do not save demand charge. Cost savings should be calculated based on energy savings only. Engineering calculation, Bin model analysis and hourly simulation models can be used to calculate energy savings. The backup calculation, calculation spreadsheet and/or the simulation model runs for the

pre- and post- retrofit case must be provided in the energy audit's Appendix B. If a calculator is used, please attach the calculator in the energy audit's Appendix B as well. Compare your EEM savings with the utility bills. If the savings are too high (e.g. over 20% of total utility bills) please make necessary adjustment.

#### 4. Domestic Hot Water

- A survey of the domestic hot water (DHW) system and associated equipment (such as circulation pumps, storage tanks or cooling towers).
- A discussion of the age, quantity, size, efficiency and controls (or operating hours) of the existing DHW equipment and problems in a pre-retrofit section.
- A description of how the recommended measure(s) or proposed modifications would improve the system efficiency and save energy.

Select the efficiency measure from the measure pull-down menu on Form B carefully because the EUL for each measure may be different. An instantaneous hot water heater and a variable speed drive have different EULs. The backup calculation, calculation spreadsheet and/or the model runs for the pre- and post- retrofit case shall be provided in the Appendix. If a calculator is used, please attach the calculator in the Appendix as well.

#### 5. Clean Generation Measures

- A discussion of the existing conditions and energy efficiency measure(s) implemented in existing condition section.
- A detailed description of quantity, size, energy savings or production, capacity factor and maintenance description in this section.
- Backup calculations based on the current or proposed rate schedule in the energy audit's Appendix B.

All schools need to consider energy efficiency measures before implementing any clean generation measure. A school can end up with an oversized generation project if it does not consider and implement the EEMs first.

#### 6. Other Measures

- A discussion of the existing conditions and proposed modifications for other measures not covered in the above sections such as plug load measures, energy storage or power factor improvement measures etc.
- A detailed description on quantity, size, energy savings or production, capacity factor and maintenance description in this section.
- Backup calculations in the energy audit's Appendix B.

## Grants and Incentives

If the school intends to use grants and incentives in the SIR calculation, provide the funding source and amount of the grants and financial incentives information here. For bond-funded grants, indicate the source of funding and why the interest or debt service will not be repaid. Describe what measures are eligible for utility rebate and how utility rebates are calculated.

## Appendices

### Appendix A

Baseline Energy Use, Benchmarking and Energy Balance (if lighting or HVAC kWh energy use exceeds 50% of baseline)

#### Baseline Energy Use

Provide monthly and annual energy use by each account. If the school has a PV system onsite, obtain the annual kWh production from the PV monitoring system or inverter.

#### Benchmarking

Based on total annual energy use data from all meters serving the school and square footage of the school, create a benchmarking table for all energy uses. (such as \$/sf/yr, kWh/sf/yr, Therms/sf/yr, etc)

#### Energy Balance

If lighting energy use exceeds 35% of baseline or HVAC kWh energy use exceeds 50% of baseline, provide the percentage estimate for each end use category. Provide all assumptions and calculations for each end use category.

### Appendix B

#### Energy Efficiency Measure Calculations

Provide the pre-and post-retrofit energy use for the recommended equipment and control measures by school. Discuss how assumptions are used and energy savings are obtained. Compare the demand and energy use for pre- and post- retrofit conditions. Attach analyses documentation and calculations here including spreadsheets, simulation model analysis and/or engineering calculations as appropriate.

## **APPENDIX A: Energy Expenditure Plan Checklist**

Note: The Energy Commission has included this checklist for your convenience. Please use this checklist to ensure that you have submitted a complete Energy Expenditure Plan.

- Expenditure Plan General Form A (Excel file)
- Expenditure Plan Project Summary Form B (Excel file) –  
Note that multiple Form B files may be included based  
on the number of schools or sites included in the  
expenditure plan
- Utility Data Release Authorization Form
- Energy Audit (if applicable)
- Energy Survey (if applicable)
- Energy Calculators (if applicable)
- Building Owner Certification to Transfer Energy Cost  
Savings to LEA (if applicable)