

Sacramento Municipal Utility District

Advanced Commercial Solutions Procedures Manual

April 15, 2021



Table of Contents

- 1.0 Introduction 4
- 2.0 Program overview 4
- 3.0 How to apply 5
 - 3.1 Projects in the proposal stage 5
 - 3.2 Projects under contract 6
 - 3.3 Projects ready for payment 6
- 4.0 Eligibility for participation 7
 - 4.1 Customer eligibility 7
 - 4.2 Partner firm eligibility 7
 - 4.3 Project eligibility 7
- 5.0 Qualifying electrification and energy efficiency measures 8
- 6.0 Projects that increase electrical load 8
- 7.0 Performance approach 9
 - 7.1 System calculation 9
 - 7.2 Whole building modeled 9
- 8.0 Prescriptive approach 10
- 9.0 Demand reduction incentive 11
- 10.0 Program alternatives 11
- 11.0 Incentive payments 12
 - 11.1 First come, first served 12
 - 11.2 Incentives/rebates from other programs 12
 - 11.3 Incentive rates and caps 12
 - 11.4 Multi-year projects 12
 - 11.5 Changes to project scope 12
 - 11.6 Incentive payments 12
 - 11.7 Duration of measure installation 13
- 12.0 Post-installation inspection 13
- 13.0 Project costs 13
 - 13.1 Project cost 13
 - 13.2 Cost documentation 13

14.0	Project termination	15
14.1	Projects with Statement of Interest completed	15
14.2	Projects with Reservation of Incentive completed	15
14.3	Appeal of termination	15
15.0	Payee suspension.....	16
16.0	Contact information.....	17
	Appendix A: Design team incentive	18
	Appendix B: System calculation (electrification and energy efficiency).....	19
	Appendix C: Whole building modeled (electrification and energy efficiency)	20
	Appendix D: Horticultural operations	21
	Appendix E: Retro-commissioning (RCx)	22
	Appendix F: Pump energy assessment program.....	23
	Appendix G: Ineligible measures	24

1.0 Introduction

The Advanced Commercial Solutions Incentive Program (ACS Program) provides design assistance and calculated incentives to optimize non-residential projects for electrification and energy efficiency. Electrification refers to projects reducing gas use through implementation of efficient electric technologies, quantified as equivalent kWh (kWh-e). SMUD's free design assistance offers insights and considerations for review and support of the design effort. Financial incentives help cover the incremental cost difference between efficient and standard equipment. Depending on the project, a design team incentive may also be available to support innovative and cutting-edge electrification technologies for all-electric designs.

The ACS Program is comprised of both the Custom Retrofit (existing system) and Integrated Design Solutions (new construction and extensive renovation) incentive programs.

Note that changes to incentives and the program rules may occur between revisions of the Procedures Manual. Please visit smud.org/Custom or smud.org/IDS to ensure your version of the Procedures Manual is the most current.

Incentives are first come – first served. No incentive is reserved for your project until SMUD provides a signed Reservation of Incentive.

2.0 Program overview

- 1) The ACS Program uses an incentive application available upon request at CustomRetrofit@smud.org or IntegratedDesign@smud.org, or 916-732-5095.
- 2) Owner incentives are calculated and dependent on annual electrification (kWh-e) and energy savings (kWh).
- 3) A design team incentive is available for all-electric designs offsetting natural gas use.
- 4) A Reservation of Incentive, signed by SMUD, is required before construction and/or installation of the measure(s) begins.
- 5) The ACS Program offers different participation paths. SMUD will use the most appropriate option for each project to determine annual electrification (kWh-e) and energy (kWh) savings:
 - a) **Performance approach:**
 - i) **System calculation:** Individual systems are analyzed using spreadsheets or other tools.
 - ii) **Whole building modeled:** Energy modeling software compares the baseline building performance to the proposed project. The design team incentive is only available for all-electric projects using the whole building modeled path.
 - b) **Prescriptive approach:** Fixed incentives for qualifying equipment. The application process is much more streamlined than the systems or whole building modeled approach.
- 6) For specific incentive requirements, refer to the Appendices.

3.0 How to apply

Request a copy of the ACS Incentive Program Application at CustomRetrofit@smud.org or IntegratedDesign@smud.org or call 916-732-5095.

The ACS Incentive Program Application (Form SMUD-3714) is ideally filled out and signed electronically, and consists of the following:

- 1) **Instructions** – This page contains a checklist of required items for each phase of the project (page 1).
- 2) **Statement of Interest** – This is the first step in the application process, providing SMUD with background on the project. This is completed by the applicant, which is the party completing the application (page 2).
- 3) **Payee Information** – The incentive recipient fills in necessary information. The payee is the party receiving the incentive. Note that the applicant and payee can be the same party (page 2).
- 4) **Terms and Conditions** – The payee agrees to and accepts the Terms and Conditions. This is signed when submitting the Statement of Interest (page 3).
- 5) **Reservation of Incentive** – Once the applicant submits all required documentation, SMUD will return a countersigned Reservation of Incentive which sets aside incentive funds for the specified period if conditions and milestones for the Reservation of Incentive are met (pages 2 and 3).
- 6) **Participation in PowerDirect®** – PowerDirect® is SMUD's optional auto demand response program. If interested, fill out the PowerDirect® Statement of Interest to apply for the program (page 4).
- 7) **Incentive Payment Request** – Upon completion of the project, the payee submits the Incentive Payment Request to SMUD (page 5).

3.1 Projects in the proposal stage

For projects in the early proposal stage or pre-schematic design phase, the applicant should submit the following information to receive an incentive estimate:

- 1) Statement of Interest and Terms and Conditions, completed and signed
- 2) Technical documents to allow estimation of incentive. Additional information may be required to support the analysis, such as equipment cut sheets, energy models, supporting calculations, etc.
- 3) For additional incentives, customers may consider participating in SMUD's optional automated demand response program, by submitting a PowerDirect® Statement of Interest.

Remember, it is never too early to reach out to SMUD for an estimated incentive.

Incentives are first come – first served. No incentive is reserved for your project until SMUD provides a signed Reservation of Incentive.

3.2 Projects under contract

For projects under contract where construction is imminent, the applicant submits the following information to receive a Reservation of Incentive:

- 1) Statement of Interest, Payee Information, and Terms and Conditions, completed and signed.
- 2) Technical documents to allow Reservation of Incentive.
 - a. Additional information may be required to support the analysis for the systems that will be installed, such as detailed scope of work, equipment cut sheets, energy models, supporting calculations, etc.
 - b. Copy of the purchase order, signed contract, or a notice to proceed.
- 3) Coordinate with SMUD for a site inspection **before** work begins to document the existing systems.

An incentive may be reserved for projects completed within 36 months of the dated Reservation of Incentive. For eligible projects with completion lead times beyond 36 months, pending SMUD approval, a pre-negotiated end date may be established for the Reservation of Incentive.

Pre-determined milestones will need to be met to maintain the Reservation of Incentive (i.e. dates construction begins, equipment will be onsite, etc.).

If the milestones and project completion dates are not met, the Reservation of Incentive may be cancelled. Pending budget availability, the project may be issued a new Reservation of Incentive under the rules of the current program year.

3.3 Projects ready for payment

When the project is complete and operational, the applicant must submit the following:

- 1) Incentive Payment Request
- 2) Technical documents to allow final calculation of incentive based on the installed scope of work.
- 3) Invoices capturing project cost, contract, and/or notice to proceed. Refer to section 13.0 for more information.
- 4) Coordinate with SMUD for a site inspection to document the installed systems.

SMUD will inspect the project, adjust the incentive if necessary, and release incentive funds for payment.

4.0 Eligibility for participation

4.1 Customer eligibility

The ACS Program is open to all SMUD customers receiving electricity under a nonresidential rate. The customer will be the beneficiary of any electrification and energy efficiency improvements.

4.2 Partner firm eligibility

Third parties (partner firms) including contractors, engineers, and energy services companies (ESCOs) may apply for incentives on a customer's behalf.

Partner firms who receive an incentive payment will be required to enroll as a vendor with SMUD and will be required to submit a W9 and a CA590, if applicable. The payee and/or customer (if different) for any incentive is responsible for signing the Reservation of Incentive and accepting the Terms and Conditions.

The SMUD customer receiving the benefit of the installed measures will be made aware of the existence of an incentive as well as its value.

4.3 Project eligibility

ACS projects must meet the following criteria:

- 1) Located in SMUD service territory.
- 2) Is categorized as one of the following:
 - a) Retrofit of existing systems (including retro-commissioning)
 - b) New construction
 - c) Extensive renovation, defined as complete replacement of two of the three building systems (mechanical, lighting, envelope).
- 3) Annual electricity purchases must exceed the project's proposed savings. In the event the customer has less than one year of billed consumption, the annual consumption will be projected.
- 4) Customer is early enough in the project development to consider design changes.
 - a) For participation with Custom Retrofit, a completed Statement of Interest and Terms and Conditions must be given to SMUD before equipment is ordered and any work begins.
 - b) For participation with IDS for a potential owner's incentive for the systems calculation, whole building modeled, and prescriptive approach, the customer needs to provide a completed Statement of Interest and Terms and Conditions prior to 100% design development documents. For all-electric projects designed with beneficial electrification technologies to offset gas usage, refer to Appendix A for requirements for a potential design team incentive. For projects submitted after 100% design development, for potential incentives:
 - i) Only measures that SMUD recommends and are incorporated into the design will be considered eligible.
 - ii) Verification will be required that the design was altered based on the recommended measures from SMUD.

- 5) Contractor must be licensed and qualified to perform the work specified in the Statement of Interest.
- 6) All applicable permits must be pulled and closed.
- 7) New equipment meets all applicable codes, including the State of California Title 24 part 6 and Title 20.
- 8) Payee must be willing to participate in SMUD's future review of the project's performance for the purpose of determining the ACS Program's performance. Payee may be requested to answer questions regarding the installed measures performance and agrees to the release of billing data to SMUD or its consultant. In the event the modification does not perform as well as expected, SMUD will not seek the return of incentives paid for projects negotiated in good faith.
- 9) The applicant has not been suspended from participating in the ACS Program.
- 10) Installed technologies do not appear on the Ineligible Measures List (refer to Appendix G).

5.0 Qualifying electrification and energy efficiency measures

Requirements of technologies applying for the ACS Program include:

- 1) **Cannot overlap other incentive/rebate programs** – Any measures included in the application cannot apply for multiple electrification and energy efficiency incentives or rebate programs. SMUD, at its sole discretion and with preapproval, may make exceptions for projects using special SMUD PowerDirect® or SMUD R&D programs. Cost caps will be observed when utilizing multiple programs.
- 2) **Fuel substitution measures** – SMUD can pay incentives on projects that switch from a fossil fuel to an efficient electric energy supply, also known as electrification. Fuel substitution measures require additional approvals. Using less gas in the proposed buildings without the use of electrification technologies will not be eligible for electrification incentives.
- 3) **Savings must not be reliant on behavioral changes** – Projects are required to have permanent electrification and energy efficient modifications and/or automated controls. Exceptions at SMUD's discretion.

With prior approval from SMUD, manufacturing facilities and industrial processes may be eligible for an electrification incentive. An industry standard baseline that uses natural gas and is shown to be less expensive to implement needs to be established for the project.

For projects previously all electric, pre-approval from SMUD is required to be eligible for the electrification incentive.

6.0 Projects that increase electrical load

Energy efficiency incentives are available for process improvement projects resulting in greater overall consumption provided that the specific consumption (kWh per unit) decreases. For example, if due to improvements in technology, a manufacturer adds a second manufacturing line that has a lower specific consumption than the first manufacturing line, it would be considered energy efficiency for the purposes of calculating an incentive.

To be eligible for incentives, a project that adds load must demonstrate greater incremental cost for the efficient option when compared to the industry standard or other actual alternatives the customer considered. The incentive is intended to help bridge the cost gap. In the unlikely event that the more-efficient option is less expensive than the baseline option, the project will not be eligible for incentives.

7.0 Performance approach

Incentives are calculated by determining the difference in annual energy consumption between the proposed efficient system and a baseline system.

7.1 System calculation

Individual systems are calculated using spreadsheets, or with prior approval from SMUD, other software tools to determine annual electrification (kWh-e) and energy (kWh) savings.

7.2 Whole building modeled

SMUD accepts building simulation software approved by the California Energy Commission. With prior approval from SMUD, software not listed with the California Energy Commission may be used to model systems not able to be modeled with CEC-approved software, such as underfloor air distribution, thermal mass, natural ventilation, radiant cooling & heating, heat recovery with heat pump technology, or other innovative strategies.

When modeling the baseline building, the design team may submit a separate building model, representing the CA Energy Code standard building, using the following guidelines:

- 1) Incorporate the defined HVAC system in the CA Energy Code Alternative Calculation Method (ACM) Reference Manual (System Descriptions) for different buildings on site.
- 2) Use the weather file as defined in the ACM Reference Manual (Climate Data) for CA Energy Code Climate Zone 12.
- 3) Include any operating conditions the permitted CA Energy Code (and the ACM Reference Manual, where applicable) impose on a Standard building, such as supply air temperature, temperature resets (water/air), ΔT across the coils, pumping energy, fan energy, equipment sizing, economizers (water/air), VFD (pumps/fans/compressors), controls, data center cold aisle/hot aisle containment, refrigerated warehouse, etc.
- 4) Incorporate the permitted CA Energy Code minimum performance on the envelope (wall, slab, roof, glazing), HVAC (efficiency), and lighting (LPD).
- 5) Maintain the identical as in the Proposed building:
 - a. HVAC zoning
 - b. Physical features (building area, room area, orientation, window size/locations, etc.)
 - c. Internal loading (occupancy, sensible/latent loads, DHW, receptacle, process, etc.). The internal loads should match the design intent as closely as possible, using the same diversity factors.
 - d. Schedules
- 6) For determining the percent below the permitted CA Energy Code, use the permitted CA Energy Code Time Dependent Values (TDV) values.

- a. For an energy efficiency incentive, the proposed building design needs to be 10% or better than the CA Energy Code minimally compliant building using TDV for 8760 hours for California Climate Zone 12.
- b. Exclude process and receptacle loads from the standard and proposed buildings when determining the % better than the CA Energy Code.

For building projects required to tie into an existing central plant, use the following guidelines:

- 1) The baseline and proposed buildings will use the existing central plant performance and control strategies.
- 2) Some examples of energy savings realized from the proposed building will be:
 - a. Reduction in gas usage using beneficial electrification technologies (such as heat pumps).
 - b. Electrical savings through more effective use of the central plant chilled water, such as four pipe VAV boxes, greater chilled water ΔT , or warmer chilled water set points.
 - c. Central plant pumping energy realized as a benefit (or detriment) for the proposed building.
- 3) The intent is the primary heating and cooling systems the building is tied to, beyond five feet from the building, are identical between both models.
 - a. The standard building would use the permitted CA Energy Code, using ACM Reference Manual (System Descriptions for VAVS).
 - b. The proposed building model would be as designed.
- 4) If the central plant happens to also be undergoing upgrades, the standard building in that case would be modeled with the respective CA Energy Code for the specific upgrades made, with all other central plant systems remaining identical between the two models.

The electrification and energy savings would be determined by comparing the standard and proposed results. When comparing the results of the separate standard and proposed models, where a standard and proposed building is generated, use the “proposed” model results of each.

Once the results for the models are identified by building system (i.e. space heating, space cooling, indoor fans, heat rejection, pumps, domestic hot water, lighting, receptacle, and process), SMUD can determine the electrification and energy efficiency savings.

8.0 Prescriptive approach

SMUD offers fixed incentives for common measures for Go Electric and indoor horticultural grow lighting. The application process is more streamlined than the modeled approach.

The prescriptive approach for electrification measures are offered to projects replacing gas-fired equipment with efficient electric equipment. For the SMUD Go Electric program, please visit smud.org/Custom or smud.org/IDS for current information on incentive offerings.

The only prescriptive incentive for energy efficiency projects in the ACS Program is for indoor horticultural grow lighting in horticultural applications. Please see Appendix D for more information.

9.0 Demand reduction incentive

The ACS Program does not offer incentives for peak demand reduction. However, SMUD's optional PowerDirect® Automated Demand Response program offers payments to SMUD customers for reducing electrical demand during a PowerDirect® event when needed. Visit [smud.org/PowerDirect](https://www.smud.org/PowerDirect) for more information.

10.0 Program alternatives

For existing buildings replacing common lighting, HVAC, refrigeration, and food service equipment, electrification and energy efficiency upgrades are likely eligible for the Express Energy Solutions program ([smud.org/EES](https://www.smud.org/EES)). Additionally, there are several other program offerings through SMUD that may prove to be beneficial, such as Greenergy®, SolarShares®, PowerDirect®, and Electric Vehicle Service Equipment (EVSE) opportunities. Check [smud.org](https://www.smud.org) and reach out to your Strategic Account Advisor for the most current program offerings.

Multi-family and mixed-use buildings may use the Express Energy Solutions program ([smud.org/EES](https://www.smud.org/EES)) and Smart Homes ([smud.org/en/Going-Green/Smart-Homes](https://www.smud.org/en/Going-Green/Smart-Homes)). Existing multifamily buildings can apply for Multifamily Whole-Building housing rebates (<https://www.smud.org/en/Business-Solutions-and-Rebates/Business-Rebates/Multi-Family-go-electric-incentives>).

11.0 Incentive payments

11.1 First come, first served

Program funds are available on a first come, first served basis. Incentive budgets are finite and could potentially be exhausted. Only projects receiving a Reservation of Incentive are guaranteed an incentive if the project meets prescribed milestones that best fit the project and are completed within the stated timeframe.

11.2 Incentives/rebates from other programs

SMUD, at its sole discretion, will determine the most applicable incentive program for a customer. Once an application is submitted to one of SMUD's incentive or rebate programs, unless approved by SMUD, an application may not be resubmitted to a different program, even if the terms of the second program are more favorable.

11.3 Incentive rates and caps

The ACS project incentives are applied per customer site, per year, per completed and permitted project plan set. The customer site includes all buildings on a parcel or contiguous parcels (campus) that are considered by SMUD to be a single customer of record.

Incentive caps are per program year (the current calendar year) and incentive payments are cumulative when compared to caps. A project cannot be divided across a calendar year to receive multiple incentives unless the phases are separately permitted with separate construction documents.

For projects incorporating both electrification and energy efficiency measures, the incentives will be additive.

Large projects that exceed the project incentive caps and realize extraordinary utility benefits may be eligible for special incentives, at SMUD's sole discretion.

11.4 Multi-year projects

The ACS Program assists customers with projects having extensive development periods. Please refer to section 3.2 for program participation requirements.

11.5 Changes to project scope

If the project scope changes significantly between the Reservation of Incentive and the post-installation inspection, SMUD reserves the right to either maintain or reduce the incentive. If scope changes are brought to SMUD's attention prior to installation, SMUD will evaluate the changes for potential incentive adjustments.

11.6 Incentive payments

Provided the project has been installed, the payee indicated on the Incentive Payment Request can expect to receive a single incentive payment, by check, within 30 days of submission of all required completed incentive applications, technical data sheets, and other documentation. Failure to provide these documents within 60 days of project completion may forfeit the incentive for the project.

11.7 Duration of measure installation

Over the course of many years, SMUD gains long term environmental and electrical grid benefits from the installed gas and electrical saving measures receiving a financial incentive. The expectation is the measures remain installed for the operational for the life of the equipment. In the event SMUD determines that equipment is disabled or removed prematurely, outside of normal business practice and before the end of its useful installed life, SMUD reserves the right to reclaim any incentives paid to the project. Additionally, the customer could potentially be banned from participating in additional SMUD program offerings.

12.0 Post-installation inspection

Once the project is installed and operational, SMUD will inspect the new systems to verify the installed scope of work. Photographs will be taken to document how the project was implemented. The inspection will be conducted, either in-person or remotely, at SMUD's discretion. Remote inspections are performed over a video conferencing platform (i.e. Microsoft Teams, Google Duo, or Apple FaceTime).

13.0 Project costs

13.1 Project cost

The project costs are the entire cost of implementing the electrification or energy efficiency measure which is receiving the incentive.

When an electrification or energy efficiency measure is a component of a larger project, SMUD reserves the right to request documentation verifying the value of only the tasks related to the measures receiving the incentive.

13.2 Cost documentation

Prior to an incentive payment, SMUD requires the applicant to submit project costs using the following protocols:

Acceptable methods of demonstrating project cost:

- 1) All invoices, receipts, etc. must include adequate detail of the new equipment/measures.
- 2) Copy of the contractor's final invoice indicating overall contract value.
- 3) Copy of the contractor's partial payment invoice indicating both the overall contract cost and enough invoiced payments to cover all the project incentive caps.
- 4) SMUD may require additional documentation in cases where invoicing is unclear, or deficient in some way.

Eligible components of project cost:

- 1) Allowable project costs may include engineering, construction, equipment, materials, removal, recycling, overhead, tax, shipping, and labor.
- 2) When an efficiency project is a component of a larger project, SMUD reserves the right to request documentation verifying the value of only the tasks related to the efficiency project. For example, a customer replaces a swimming pool and associated equipment, and is eligible for a rebate on the pump upgrade. SMUD may request the material and labor costs of the pump installation only.
- 3) Project cost may not include spare parts, maintenance supplies, maintenance contracts, standby/backup equipment, or other equipment that does not contribute to the realization of energy savings. Project cost may not include any costs incurred in advance of an executed contract or order such as sales, marketing, audits, or assessments.
- 4) Labor (self-install): Assuming all relevant codes and standards are complied with, and program rules are otherwise complied with, SMUD permits customers to include their own employees' labor in the project cost. In this case, some substantiation of labor rates and labor hours shall be provided and may be negotiated. SMUD reserves the right to reduce or remove self-install labor from projects claiming unreasonably high labor rates or labor hours to perform a retrofit.
- 5) Labor required for self-install projects may be excluded from the project cost if the installation is piecemeal over a long period and is performed during normal work hours. A common example would be the installation of a few lamps every day over a month. In this case, the labor to perform the retrofit is considered part of normal operations and has negligible impact on the project cost.

Combining measures to increase project cost

To avoid stranding difficult measures, SMUD will permit the combination of project costs between cost effective and expensive measures, subject to the following guidelines:

- 1) The combined projects must be related (for example, HVAC + retro-commissioning).
- 2) The projects must be completed simultaneously.
- 3) The projects are only electrification and energy efficiency measures (you can't increase the cost of an HVAC Rooftop unit by including the cost of the simultaneous re-roofing).

For example:

Projects Performed Separately	
Proposed HVAC Rooftop Unit Replacement Project Cost: \$20,000 Savings: 10,000 kWh/yr Incentive: \$0.15/kWh, or 50% of project cost, whichever is lower. Incentive = \$1,500 (\$0.15/kWh)	Economizer Service on Otherwise Properly Functioning Units
Projects Performed Together	
Replace HVAC Rooftop unit with a high efficiency unit and perform economizer service on two adjacent units. Economizers have been identified as malfunctioning. Contractor provides a study to SMUD and receives approval prior to starting work.	

14.0 Project termination

SMUD values all customers who endeavor, in good faith, to participate in SMUD's programs and will make every effort to renegotiate completion dates or incentives prior to the expiration or termination of applications. However, projects may be terminated (cancelled) at SMUD's discretion if they satisfy any of the following conditions:

14.1 Projects with Statement of Interest completed

Incentive applications for projects with a completed Statement of Interest will be nullified:

- 1) After one year unless progress has been made toward the Reservation of Incentive.
- 2) For a Custom Retrofit project, installation commences prior to the approved Reservation of Incentive.
- 3) Applicant is unable to provide appropriate and complete documentation (technical data sheets, signed contracts, etc.) for SMUD to issue the Reservation of Incentive before construction starts.

These projects may be reinstated at any time under current program rules provided the program still exists, incentives are available, and the project is still eligible.

14.2 Projects with Reservation of Incentive completed

Incentive applications for projects with a completed Reservation of Incentive will be nullified if:

- 1) SMUD determines that significant information was purposely withheld or falsely stated in the incentive application.
- 2) The project fails to be installed, fully commissioned, or fully operational prior to the installation deadline.
- 3) Pre-determined project milestones are not met.
- 4) Applicant formally requests to withdraw from the program.
- 5) Applicant fails to provide complete documentation (incentive payment request, technical data sheets, invoices, etc.) within 60 days of project completion.
- 6) The application is a duplicate.

14.3 Appeal of termination

Prior to terminating or cancelling an application, SMUD will email a notice to the payee at the email address on the application. The payee has seven (7) days to provide a written appeal to ACSPProgram@smud.org with reasoning for an extension request. Note that failure to complete the project or provide the required documentation does not constitute a valid reason for extension.

After the seven (7) day appeal period, the application will be cancelled.

15.0 Payee suspension

If SMUD determines that a payee has acted in a manner to indicate an intent to defraud SMUD, SMUD will restrict participation in its programs. Any project installed during the suspension period is ineligible for incentives or rebates.

SMUD will ask the party being suspended to acknowledge the suspension. Regardless of the acknowledgement, the suspension period begins on the date of the notice of suspension. Legitimate incentives for projects found to be erroneous will be forfeited in all cases except those warranting a warning letter.

SMUD may apply suspensions to individuals, businesses, customers, equipment distributors, and vendors.

Infractions are removed one year from the notice of suspension. The following table contains guidelines. SMUD reserves the right to accelerate or lengthen the suspension period in clear cases of fraud.

	Example of issue (not a comprehensive list)	Suspension period
Carelessness or unintentional variance	<ul style="list-style-type: none"> Minor error in fixture count Minor error in determining fixture wattage 	<ul style="list-style-type: none"> First infraction: Warning Letter Second infraction: 90 Days Third infraction: 180 Days
Deliberate miscalculation	<ul style="list-style-type: none"> Substantially overstating wattage/horsepower/tonnage of existing equipment (ex: claiming 250W HID as 400W HID, 3 lamp fixtures as 4 lamp fixtures, claiming T8 fixtures as T12 fixtures, etc.) Major overstatement of fixture count (>10%) Improperly claiming project completion 	<ul style="list-style-type: none"> First infraction: 90 Days Second infraction: 1 Year (12 months)
Fraud	<ul style="list-style-type: none"> Doctoring manufacturers data sheets Claiming already completed projects as new retrofits Doctoring project cost documentation (invoices) Submitting different invoices to SMUD and the customer Submitting multiple applications for same project Relocating or reselling incentivized equipment before the end of its useful life Knowingly islanding incentivized equipment from SMUD's grid before the end of its useful life 	<ul style="list-style-type: none"> First infraction: 1 Year (12 Months) Second infraction: Permanent prohibition from participation.

16.0 Contact information

A representative of the Advanced Commercial Solutions Program team can be reached by email at CustomRetrofit@smud.org or IntegratedDesign@smud.org or by phone at (916) 732-5095.

Appendix A: Design team incentive

The design team incentive will be available only for all-electric projects through IDS. The design team may be eligible to receive this incentive, calculated as the lesser of 50% of the owner's incentive or \$10,000, if the following conditions are all met:

- 1) The completed ACS Program incentive application for the design team is received and approved by SMUD prior to 100% design development documents.
- 2) The project owner/developer has a completed Statement of Interest and Terms and Conditions on file with SMUD and is eligible to receive an incentive.
- 3) The new construction or extensive renovation project is designed to be all-electric, without any gas infrastructure serving the building.
- 4) At least one beneficial electrification measure is designed into the project to offset gas usage. Examples of such measures are air to air heat pumps, air to water heat pumps, water to water heat pumps, water to air heat pumps, heat pump water heaters, or heat recovery chillers.

Appendix B: System calculation (electrification and energy efficiency)

Individual systems are calculated using spreadsheets or other tools to determine annual site electrification savings (measured in equivalent kilowatt-hours, or kWh-e) or energy savings (measured in kilowatt-hours, or kWh). Site kWh-e is the baseline equipment's gas usage (converted to kWh) less the proposed equipment's site electrical kWh usage.

Electrification Incentive:

- 1) \$0.30 / kWh-e for first year energy savings:
kWh-e = (baseline gas usage converted to kWh) – (proposed equipment electrical usage in kWh)
- 2) Incentives are limited to \$0.30 / kWh-e, 50% of eligible project cost (refer to section 13.0), or \$150,000, whichever is less.

Energy Efficiency Incentive:

- 1) \$0.15 / kWh for first year energy savings for non-lighting measures.
- 2) \$0.10 / kWh for general lighting measures.
- 3) Incentives are limited to program \$ / kWh incentive rates, 50% of eligible project cost (refer to section 13.0), or \$100,000, whichever is less.
- 4) For horticulture grow lighting, pump efficiency and retro-commissioning incentive rates, please refer to Appendices D – F.

Appendix C: Whole building modeled (electrification and energy efficiency)

Whole building energy simulations are used to determine annual electrification (site kWh-e) and energy (kWh) savings using California Energy Commission approved software. Another software may be permitted with prior approval from SMUD.

Electrification Incentive:

- 1) \$0.30 / kWh-e for first year energy savings.
$$\text{kWh-e} = (\text{Baseline gas usage converted to kWh}) - (\text{Proposed equipment electrical usage in kWh})$$
- 2) Incentives are limited to \$0.30 / kWh-e, 50% of eligible project cost (refer to section 13.0), or \$150,000, whichever is less.

Energy Efficiency Incentive:

- 1) \$0.15 / kWh for first year energy savings for non-lighting measures.
- 2) \$0.10 / kWh for general lighting measures.
- 3) Incentives are limited to program \$ / kWh incentive rates, 50% of eligible project cost (refer to section 13.0), or \$100,000, whichever is less.

Modeling methodology for converting kWh (electric) heating in a standard building to kWh-e (gas) heating:

The standard building, per the permitted CA Energy Code ACM Reference Manual, may use natural gas for space heating. Some software tools may generate a standard building automatically that uses electricity as the fuel source for space heating if the proposed building is all-electric.

When using the one building model approach that generates the standard building automatically based on the proposed building, the following corrective methodology creates an equivalent standard building that uses natural gas as its primary space heating source.

- 1) Multiply the proposed space heating kWh by 3 COP (for average heat pump efficiency) and divide by 0.8 TE (for average gas furnace thermal efficiency):

$$\text{Standard kWh-e} = \text{Proposed space heating kWh} * \frac{3 \text{ COP}}{0.8 \text{ TE}}$$

- 2) To determine the overall site kWh-e savings for space heating, the calculated site kWh for the proposed building will be subtracted from the standard building kWh-e:

$$\text{Savings kWh-e} = \text{Standard kWh-e} - \text{Proposed kWh}$$

- 3) To convert kWh-e to natural gas (therms), divide the kWh-e by 29.3 $\frac{\text{kWh}}{\text{therm}}$:

$$\text{Therms} = \text{kWh-e} / 29.3 \frac{\text{kWh}}{\text{therm}}$$

Appendix D: Horticultural operations

Depending on measure selected, SMUD uses a calculated or prescriptive approach to determine the incentives for equipment used in horticulture operations. Examples of these systems include indoor horticultural grow lighting, mixed lighting, high efficiency air conditioning and dehumidification equipment, horticultural product extraction, and manufacturing process equipment for horticulturally derived products.

Horticultural grow lighting:

- 1) \$200 / fixture
 - a. LED fixtures (~600 W) replace HPS (~1,000 W) one-for-one. Other configurations are eligible for different incentives.
 - b. All fixtures must satisfy the technical requirements and must be listed on the Design Lights Consortium's Horticultural Lighting Qualified Products List (QPL) at designlights.org.
 - a. Fixture types not categorized on the QPL may still be eligible. Contact the Cannabis Operations team for further details (smud.org/cannabis).
 - c. Mixed light (greenhouse) facilities are excluded from the \$200 / fixture incentive. SMUD will use a calculated approach to determine the incentive at \$0.10 / kWh.
- 2) Horticultural grow lighting incentives are limited to \$200 / fixture (or \$0.10 / kWh for a calculated approach), 50% of eligible project cost (refer to section 13.0), or \$50,000, whichever is less.
- 3) For indoor horticulture LED lighting enrolled in the Integrated Design Solutions program, the incentive application needs to be submitted prior to the date the building permit is issued and before fixtures are purchased.

HVAC, process equipment, and general lighting:

- 1) HVAC and process equipment
 - a. \$0.15 / kWh for first year energy savings.
- 2) General lighting
 - a. \$0.10 / kWh for first year energy savings.
- 3) Incentives are limited to \$0.15 / kWh (HVAC and process equipment) plus \$0.10 / kWh (general lighting), 50% of eligible project cost (refer to section 13.0), or \$100,000, whichever is less.

The maximum total available incentive is \$100,000 for any combination of energy efficiency measures including horticultural grow lighting, HVAC, process equipment, and general lighting projects.

Projects that involve electrification are subject to a separate incentive cap. Please contact SMUD for more information.

Appendix E: Retro-commissioning (RCx)

The retro-commissioning program is a controls incentive intended to capture optimization of existing energy management systems. Automated improvements to commercial and industrial facilities are also supported with this incentive. Retro-commissioning incentives are calculated and paid after confirmation is received that operational changes (i.e. EMS programming) are implemented, accepted, and operating properly.

Energy Efficiency Incentive:

- 1) \$0.08 / kWh for first year energy savings
- 2) Incentives are limited to \$0.08 / kWh, 50% of eligible project cost (refer to section 13.0), or \$100,000, whichever is less.

Other requirements of the retro-commissioning incentive:

- 1) Commercial buildings must have centralized EMS with some trending capability.
- 2) A detailed analysis shall be submitted for incentive approval. The analysis shall contain transparent savings calculations or use common energy modeling software with transparent reporting of assumptions. Note that the audit can be broad (holistic) or can be focused on specific measures. Buildings that meet a minimum size or annual energy consumption may be eligible for a SMUD-funded assessment and/or audit (if applicable).
- 3) Prior to incentive approval, a Measurement and Verification plan shall be submitted for approval that details the methodology that will be used to monitor and validate the actual building/system performance.
- 4) Existing system must be reasonably modern and maintained.

Retro-commissioning measure eligibility is complex. Contact SMUD early to discuss your project.

Examples (partial list) of eligible retro-commissioning measures (commercial)
<ul style="list-style-type: none">• Correct actuator/damper operation• Correct economizer operation• Adjust or implement condenser water reset• Adjust or implement supply air temperature reset• Adjust zone temperature dead bands• Adjust equipment scheduling• Adjust or implement duct static pressure reset• Adjust or implement hot/cold deck reset• Optimize variable frequency drive on fans or pumps• Reduction in simultaneous heating and cooling
Examples (partial list) of eligible retro-commissioning measures (industrial)
<ul style="list-style-type: none">• Compressed air system optimization• Process heating or process cooling optimization

Appendix F: Pump energy assessment program

SMUD's Pump Energy Assessment Program is a monitored incentive designed to encourage optimizing the performance of ground water and surface water pump systems. Pre- and post-monitoring incentive is paid following installation and monitoring of all qualifying energy-saving pump or system improvement.

Energy Efficiency Incentive:

- 1) \$0.15 / kWh for first year energy savings
- 2) \$500 (per pump) provided for pre- and post- monitoring of pumps successfully completing the program
- 3) Incentives are limited to \$0.15 / kWh, 50% of eligible project cost (refer to section 13.0), or \$100,000, whichever is less.

Program applies to systems using pumps 25 HP or larger.

Pump test reports must include specific measurements specified below:

- 1) Monitoring must be performed by a qualified third-party provider
- 2) The pump test report shall contain the following:
 - a. Contact Information of both the pump technician and SMUD customer
 - b. Test Date, Test Location, Pump Tag/Identifier, and SMUD meter number
 - c. Motor Nameplate Data (Manufacturer, Model, HP, Voltage, Full Load Amps, Power Factor, RPM, Efficiency)
 - d. Pump Nameplate Data (Manufacturer, Model, Serial Number, Rated Flow, Rated Head, Pump Type, Discharge Flange Size, Pump Length)
 - e. Measured Hydraulic Data (Starting water level, drawdown, discharge pressure, total lift, well yield)
 - f. Measured Flow Data (Measured flow, measured discharge pressure)
 - g. Discharge Pipe System (Regulator nameplate and settings, pipe size, opportunities for system improvement)
 - h. Measured Electrical Data (Amps, Voltage, Power Factor, KW input)
 - i. Calculated Data (Horsepower input to motor)
 - j. Hours of operation
 - k. Calculated Efficiency Data (Actual motor load, hydraulic horsepower, overall plant efficiency)
 - l. Recommendations and opportunities
 - m. Description of test equipment

Use of motor nameplate data to calculate plant efficiency is not adequate for this program. Motor load and energy consumption shall be determined through the use of suitable electrical testing equipment or a dedicated SMUD energy meter if available.

Determination of motor performance by attempting to disaggregate the pump energy from other loads on a SMUD meter is not adequate for this program.

Appendix G: Ineligible measures

Measures and products ineligible for SMUD's ACS Program:

- 1) Measures installed prior to application approval
- 2) Building Envelope Measures:
 - a. Cool Roofs
 - b. Windows/Glazing
 - c. Added Insulation
- 3) Power factor correction and power conditioning equipment
- 4) Compact fluorescent lamps (CFLs)
- 5) Lamps and fixtures that qualify for the Express Energy Solutions program
- 6) Screw-in, medium base (E26) LED lamps
- 7) Technologies that fail to meet state and federal standards including the State of California Title 24 and Title 20
- 8) Measures that are not permanently installed and can be easily replaced such as:
 - a. Refrigerant additives
 - b. High performance hydraulic fluid
- 9) Solar water heating for pools and spas
- 10) Fluorescent products not meeting performance standards
- 11) Incandescent lighting used for general illumination
- 12) Duty cyclers
- 13) Measures that save energy solely due to behavior changes (changing the hours of occupancy for example)
- 14) Self-generation
- 15) Repair or maintenance of existing equipment unless participating in a Retro-commissioning incentive or pump energy assessment project
- 16) Coil cleaning
- 17) Filter changes
- 18) Server virtualization
- 19) Networked desktop power management software
- 20) LED products that do not appear on either the Design Lights Consortium Qualified Products List or Energy Star certified products list, unless pre-approved by SMUD