
SMUD's 2010 Commercial T-12 Retirement Program

Program Description

It is the intent of the Sacramento Municipal Utility District to encourage commercial account holders with electrical demand usage greater than 300 kilowatts (kW) per month to retrofit all existing interior general lighting T-12 fluorescent lamps and ballasts to T-8 energy efficient lamps and electronic ballasts.

Incentives will be paid directly to installing lighting contractors or Energy Services Companies (ESCO) that hold a contract for services. Only current C-10 licensed contractors will be allowed to perform work associated with this T-12 Retirement Program. The T-12 Retirement Program does not allow self installing of measures. Customers with qualified staff who wish to perform this work are not eligible for this program, but are eligible to participate in SMUD's Customized Lighting Program. Details of the Customized Lighting Program can be found at www.smud.org.

Projects under the T-12 Retirement Program will have an incentive dollar level cap of \$150,000 per affected account, with maximum incentive to be limited to fifty (50%) percent of project cost based on a legal and binding contract between the contractor and the customer. This program will run on a prescriptive nature, meaning that each lighting fixture will have an incentive amount assigned. A separate Excel spreadsheet (aka SMUD Worksheet) listing all eligible measures will be provided. This program will run on a first come, first served basis until all funds are expended.

This first class program is the first of its kind, necessitating professional quality work and courteousness from installers. This program will accept only third-generation lamps and ballasts to be used wherever possible. Technical requirements are disclosed later in this document.

Participation Requirements

Participation in this program requires customers and contractors to agree to retrofit all T-12 general lighting fixtures within their facility.

Customers wishing to retrofit only certain floors, or fixtures with a higher incentive level, will not be allowed to participate in the T-12 Retirement Program, but can participate in SMUD's Customized Lighting Program.

Customers must have an electrical demand of 301kW or greater within the last 12 months to participate in this program. Customers that do not meet this requirement are eligible to participate in SMUD's Prescriptive Lighting Program. The T-12 Retirement Program only allows retrofitting of T-12 lamps and ballasts, along with the installation of new LED exit signs, which replace existing incandescent exit signs. High intensity discharge (HID) lamps, compact fluorescent lamps (CFL), occupancy sensors, and dimming devices are not part of this program.

Lenses and reflective surfaces must be cleaned. Broken, cracked or missing lenses should be noted in the contract, and appropriate contractual arrangements made, so that when the project is finished, all lenses are in place and whole. If the customer chooses to have their own staff repair/replace the lenses, this must be spelled out on the contract.

Special Situations

If a building has both T-12 and T-8 fixtures, then SMUD will give incentives toward the retrofitting of the T-12 fixtures through the T-12 Program, and the T-8 upgrade could go through the Customized program.

Customers with several buildings at one location may choose to participate by retrofitting only certain buildings. This will be allowed as long as proper identification of each building is given, such as Building A, C, and F, or if each has its own address, and then the complete, identified building would be retrofitted.

It is not the intent of SMUD to give incentives toward the redesign or layout change of existing lighting mandated a tenant improvement which requires complying with Title 24.

This program does not give any incentives for those fixtures which are removed and not retrofitted, as agreed upon by the customer and the contractor.

Contractor Eligibility

Contractors must hold a current C-10 electrical contractor license to participate in this program. All projects must be completed within 90 days of project approval from SMUD. Contractors must follow all program criteria as provided in this document, as well as any instructions or training provided by SMUD program staff. All products installed as a result of this program shall comply with the product technical specifications provided within this document. This program is eligible for random pre installation/approval inspections, and all projects could be inspected after installation. It is the responsibility of contractors to inform customers of these requirements.

Removed fluorescent lamps are considered hazardous waste and must be disposed of by sending them to an approved recycling center. Polychlorinated biphenyl (PCB) ballasts must also be treated as hazardous waste. SMUD reserves the right to request documentation of proper disposal. SMUD also reserves the right to make random calls to our customers to inquire whether lamps were left on site. If we find that lamps and/or PCB ballasts were not disposed of properly, at SMUD's discretion the contractor and/or ESCO may be suspended, or expelled from future participation.

Acquirement of applicable permits from the appropriate local building department is the responsibility of the contractor.

Customer Eligibility

To qualify for this program's incentives, contractors must determine that a customer's total demand is 301kW or more per location. The total demand is the sum of all the demand (kiloWatts), measured by SMUD electric meters, at a single customer location. Location is defined as the same business park, campus, strip mall or other sub-metered building. In addition, qualifying customers must currently operate their lighting system a minimum of 1 hour between 2 and 8 p.m. during summer weekdays, June through September. If the contractor is unable to determine customer eligibility, the **customer** can call the SMUD Commercial Call Center at 1-877-622-7683 to verify their kW demand. Due to confidentiality rules, only customer representatives can ask for this information. Contractors are not to call SMUD program staff or the call center to request this information.

Installation Details

Contractors shall be responsible for ensuring that resulting lighting levels, both horizontal and vertical foot-candles, meet the recommendations of the Illuminating Engineering Society of North America (IESNA), as provided in the most recent edition of the IESNA Handbook. The general light distribution and uniformity will not change unless it changes to meet IESNA recommendations. If lamps are repositioned and/or reflectors added to fixtures, a situation of disability glare or discomfort shall not be created. All lamps and ballasts in emergency lighting fixtures shall be replaced with the same number of lamps and ballasts as prior to replacement in a one-for-one ratio.

Retrofitting of fixtures will be done on a lamp-for-lamp basis. However, if a contractor and customer agree that de-lamping is appropriate, and this is clearly explained to the customer on the contract, then SMUD will give a larger incentive for this measure, as shown on the SMUD Excel spreadsheet.

IMPORTANT: Lamp-for-lamp retrofitting mandates that only low ballast factor ballasts be used. For de-lamping situations, only normal ballast factor ballasts will be allowed.

- All bi-level switching and existing control schemes will be maintained.
- Only lamps and ballasts meeting the technical specifications will be allowed.
- Emergency lighting fixtures are not to be de-lamped.

The following lamps will qualify for incentives:

- 2' T-12
- 3' T-12
- 4' T-12
- 6' T-12 requires special handling- call program staff for instructions.
- 8' T-12 should be retrofitted to 4' T-8. Fixtures that do not allow this type of retrofit can be replaced with new qualifying fixtures. The installation of 8' T-8 lamps is allowed if all other options are not feasible. U tubes can be retrofit as required to T-8 U tubes.

Technical Specifications

Lamps

The following requirements must be met, and documented prior to approval of project. It is assumed that the majority of these projects will involve 4' lamps, but we realize other lengths are not uncommon. The 4' lamps in this program will be held to a higher standard than the others due to the availability of higher quality lamps and ballasts.

- **4' Lamps** Minimum initial lumens = 3100

Color Rendering Index (CRI) \geq 85

* **Note:** Use of 5000k color temperature lamps may have a minimum initial lumen output of 3000
- **2', 3', 6', and 8'** Minimum CRI = 85
- May use energy saving 28 Watt T-8 lamps if system efficacy maintains $> 90\%$ Lamps using less than 28 Watts are not allowed.
- Unused lamp holders must be removed on de-lamping projects.
- All lamps and ballasts in emergency lighting fixtures shall be replaced with the same number of lamps and ballasts as found, one for one replacement.
- **Existing switching design is to be maintained.**

Ballasts

- Low ballast factor ≤ 0.80 must be used in lamp for lamp retrofits
- Normal ballast factor acceptable range between 0.85 -0.88 must be used when de-lamping.
- Total Harmonic Distortion (THD) to be 20% or less
- Flicker Free
- Meet Underwriters Laboratory (UL)-listed Class P (Thermal Protection) requirements.
- Sound Rated A
- Maintain a light regulation of $\pm 15\%$ with $\pm 10\%$ input voltage variation
- A lamp current crest factor of < 1.7
- Comply with Federal Communications Commission (FCC) Rules and Regulations part 18, concerning Electromagnetic and Radio Frequency Interference, and comply with ANSI C82.11 and C82.2
- Three year warranty on parts and labor for replacement.
- Operate at 20,000 Hz or greater

Exit Signs

- Incentive is available for the installation of new Light Emitting Diode (LED) fixtures only, and must replace existing exit sign which uses incandescent lamps only.
- Fixture must be UL listed
- Rated life ≥ 10 years

Warranty

All lamps are to be replaced free of charge for 1 year, ballasts require 3 year warranty. We would suggest that contractors leave a box or two of lamps for the inevitable premature burnout or flicker.

Required Documents

Each project must be approved by SMUD prior to beginning construction.

The following documents must be submitted to begin the incentive process.

- SMUD Incentive Application form must be completely filled out and signed.
- Detailed fixture count categorized by lamp length, and number of lamps per fixture.
- Copy of legal contract signed by both customer and contractor. This document must clearly state that both parties understand that participation in this program requires all interior T-12 general lighting fixtures to be retrofitted, and the document must be legible. Furthermore, customers agree to allow SMUD staff access to all rooms for verification purposes.
- Those fixtures which present hazards beyond the ordinary can be exempted if noted in contract. Examples would be those over large vats of chemicals, those over battery banks, etc. Safety of installers and equipment should be considered in these situations. Lamps inside of equipment are not part of this program. This does not exempt those fixtures which are inconvenient to retrofit such as stairwells, etc.
- Square footage of each building (this will be on the Excel spreadsheet).
- Building usage type (this will be on the Excel spreadsheet).
- Copy of the manufacturers cut sheet showing specifications of lamps and ballast, and exit signs if applicable.
- Copy of SMUD Excel spreadsheet.
- Copy of the customer's SMUD bill.

All of the above mentioned documents are to be faxed to (732-7040), with the exception of the Excel worksheet, which must be e-mailed in original Excel format to CommercialLighting@smud.org. Do not scan all of the documents into PDF format and e-mail them. These will not be accepted.

After SMUD staff has received all of the above documents and has reviewed them for accuracy and eligibility, an e-mail will be sent with the subject line “SMUD APPROVAL,” which will contain the Excel spreadsheet with the status box changed to the “ENCUMBERED” state. This e-mail is the approval. SMUD will reserve the encumbered amount for 90 days, after which a review of the project will be conducted. If SMUD finds that a job is not being worked on diligently, funds will be withdrawn and redistributed to other projects.

Project Completion

All projects must be completed within 90 days. Instances where a project does not begin construction late in the year, and there are not 90 days left in the year, then, these projects must be completed by December 15, 2010. If it is questionable whether a job will complete before the Dec. 15th deadline, postpone it until early 2011. This program will run only while funds are available.

To submit for payment, the following documents must be faxed:

- Copy of changed contract if any changes occurred clearly noted.
- Copy of SMUD Notice of Completion form, signed and dated by both the contractor and the customer.
- Copy of SMUD Excel spreadsheet showing actual work performed, including any changes to the fixture counts, fixture type, and project cost.
- Invoice for amount owed to contractor by SMUD.

At SMUD discretion, staff will inspect some projects and send a letter by e-mail to contractors stating any discrepancies or missed fixtures (Correction Form). These issues must be corrected and documented before SMUD will release payment.

Any evidence of purposeful fraud or collusion on behalf of the contractor, so found by the T-12 Retirement Program Manager may result in ineligibility of any future projects with SMUD and possible legal action.

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