Section 2: Estimating Energy Savings

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2.1 Estimating Methods

This section of the SPC Procedures Manual describes the two distinct approaches that can be used to estimate the energy savings that are expected from your proposed efficiency measures:

1. **Estimation Software.** A good estimate of your energy savings can be obtained with the estimation software that is included on the SPC2002 CD-ROM. This approach allows you to enter site-specific information on your project.

2. **Engineering Calculations.** If your proposed energy efficiency measures are not addressed by the estimation software, you can calculate the energy savings by using accepted engineering procedures and documenting the calculations. This is the most difficult approach for estimating the savings.

2.2 Estimation Software

The estimation software on the CD-ROM allows detailed input about your facility and thus gives an accurate approximation of the energy savings. Typically, the required inputs are readily available, however in some cases spot measurements may be necessary.

The estimating tools can be accessed either by using the SPC2002 Software to complete the project application or by using the Energy Savings Calculator feature of the software. (The calculator allows you to fill out the project application forms by hand, yet calculate the savings using the SPC estimating tools.)

Estimation software tools have been developed for the most popular energy efficiency measures, listed below:

- Lighting replacement*
- Lighting controls*
- AC&RAC replacement units*
- HVAC economizers
- Variable-speed drives for HVAC fans*
- Variable-speed drives for process applications*
- Motor efficiency upgrades*
- Air compressors
- Injection molders*
- Dairy vacuum pumps*

*These measures may be included in the Express Efficiency program and thus may be ineligible for the SPC program for small customers.

Each of these tools collects project information through a combination of direct data entry and pull-down menus. The input fields are generally self-explanatory, and if you position your cursor at the very beginning (left edge) of the white input field, a “balloon” prompt will pop up to explain the type of data that should be entered into that field.

Specific considerations for each of these tools are discussed below.
2.2.1 Comprehensive Lighting

The Comprehensive Lighting estimating tool addresses the replacement of existing lamps and fixtures with units of higher efficiency. For lighting replacement to be eligible, the application must include other non-lighting measures that total at least 20% or greater energy savings for the entire project (Savings from lighting measures cannot total more than 80% of the total project savings). Savings from installing lighting controls can be used to meet this requirement.

De-lamping measures are eligible only as an integral part of a lighting efficiency upgrade. The removal of bulbs and/or the disabling of fixtures alone are not eligible for the SPC program.

Lighting fixtures and the associated savings are grouped by usage. Usage groups may include offices, restrooms, hallways/stairs, display lights, sales floor, process areas, and parking areas or structures. Inputs for each usage group include a brief description of the area affected by the lighting, as well as specifications for both existing and new equipment. Pull-down menus are used to simplify this process, but input of custom fixtures is also supported.

If a particular lampfixtureballast combination is not contained within the pull-down menus, N/A# will appear in the Watts/Fixture column and you must provide the necessary specifications by including a copy of the manufacturer’s specification sheet along with the submittal documents. For measures involving partial delamping (e.g., removing two lamps from a three-lamp fixture), spot measurements used to verify fixture loads must be input into the Proposed Equipment—Manufacturer’s Data/Spot Measurements table.

For comprehensive lighting measures you may estimate the operating hours, but you should be able to support the estimate. Note that typically operating hours should not change.

To be eligible for the program 4-foot T8 straight linear fluorescent lighting upgrades must be retrofitted with at least second-generation equipment. This means that the proposed lighting equipment must meet or exceed second-generation specifications. First, Second, and Third Generation specifications are described in the following table:

<table>
<thead>
<tr>
<th>Lamp/Ballast Combination Type</th>
<th>T8 Lamp Color Rendering Index</th>
<th>Initial Catalog Lumens</th>
<th>Rated Life @ Three Hours per Start - Rapid Start Ballast</th>
<th>Rated Life @ Three Hours per Start - Instant Start Ballast</th>
<th>Ballast Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Generation</td>
<td>&lt; 85 CRI</td>
<td>= or &lt; 2,850 initial lumens</td>
<td>= or &lt; 20,000 hours</td>
<td>N/A</td>
<td>All</td>
</tr>
<tr>
<td>2nd Generation</td>
<td>≥ or &gt; 85 CRI</td>
<td>= or ≥ 2,950 initial lumens</td>
<td>= or ≥ 24,000 Hours</td>
<td>= or ≥ 18,000 Hours</td>
<td></td>
</tr>
<tr>
<td>3rd Generation</td>
<td>≥ or &gt; 85 CRI</td>
<td>= or ≥ 3,100 initial lumens</td>
<td>= or ≥ 24,000 Hours</td>
<td>= or ≥ 18,000 Hours</td>
<td>= or &lt; 0.78 ballast factor</td>
</tr>
</tbody>
</table>

1 - All first generation 4-foot T8 linear fluorescent lighting products are excluded from SPC incentives.
2 - Second and third generation lighting products are eligible for SPC incentives.
3 - HID, T5, LED, compact fluorescent, 2’, 3’, 5’, 8’ and U-bent fluorescent systems are eligible for SPC incentives

2.2.2 Lighting Controls

The Lighting Controls tool covers the installation of occupancy sensors, time clocks, and lighting energy management systems for lighting replacements and existing lighting systems. Measures involving day-lighting, dimmable ballast, or daylight harvesting cannot use this tool and must use the Engineering Savings method of estimation.

Lighting controls line items are grouped by lighting equipment type and space type. Individual controls that regulate different light types or have different usage patterns should be grouped separately.
The Lighting Controls estimating software calculates the energy savings as the difference between the energy usage of the lighting equipment in an uncontrolled (pre-installation) and a controlled (post-installation) state. The energy demand of the lighting equipment is calculated from Information entered by the user. Information such as, bulb and ballast specifications, are selected from pull-down lists.

For time clocks or EMS type measures, the user enters previous operating hours (pre-installation) and new operating hours (post-installation). These hours must correspond to actual hours the lights are energized prior to the installation of the controls and the proposed hours from the scheduled operation. The programmed schedule for the time clock or EMS will be independently verified by the Utility.

For occupancy sensor type measures, the user enters previous operating hours (pre-installation) and a space type. The software estimates the amount of savings (time the lights will be de-energized by the occupancy sensor) based on the space type and applies it to the baseline (pre-installation) hours.

The energy savings (kWh) are calculated as the product of the lighting energy demand (kW) and the reduction in on-time (hours).

2.2.3 High-Efficiency Packaged Air Conditioners or Chillers

This tool is for chillers or packaged air conditioners that are hard-wired (i.e., no through-window units or other portable “plug-in” units). Split systems and built-up systems are not included in this tool. Package units are defined as an electric cooling unit with its compressor, condenser, and supply fan in a single container. Both air- and water-cooled package units and chillers are included. Heat pumps are also covered by this tool but only where a heat pump replaces an existing heat pump (no fuel switching). Heat pump savings are only calculated for the cooling savings.

The SPC2002 software calculates savings using the ASHRAE “simplified bin method.” This method lacks the precision, accuracy, and flexibility of more sophisticated “hourly” energy estimation programs. If you believe this method does not fairly represent the project’s savings, use the engineering calculations approach to estimate the energy savings.

For cooling and heating units not covered by this estimating tool, you will have to use engineering calculations to determine the energy savings.

Take special note of the following:

- **Modulating vs. On/Off.** It is important to select whether the proposed cooling unit is a modulating type (e.g., chiller) or one that uses on/off control (e.g., package unit).

- **Multiple Units.** Multiple cooling units may be entered together as long as they meet the following conditions:
  -- The cooling units must be identical in every respect except for size (different models numbers are OK). The efficiencies and system type must be the same.
  -- The area served by multiple units must be similar (e.g., 5–10 ton units serving an interior zone or 3–5 ton units serving a 6000-ft² building). The operating hours must be identical.

- **Building Type.** Select a “predefined” building configuration from the 17 “prototypical” buildings (see Appendix F for detailed descriptions) or define a new building type using the custom building type option. If one of the predefined building types is a fair representation of your project site, you can simply input the building location, square footage of conditioned space, and building operating hours.

  If you use the custom building option, then information on building make-up and internal loads will also be needed. New building types, once defined, will appear on the predefined
Building list for future use, thus eliminating the need to “redefine” the same building type repeatedly for different measures.

- **Building Location.** From the pull-down menu, select a city that best represents the building location; this will, in turn, automatically select a weather zone. (The program uses the California Energy Commission’s CTZ weather data, which breaks up the state into 17 weather zones.)

- **Savings Estimate.** The estimated savings are reported on the third screen of this tool.

### 2.2.4 HVAC Economy Cycle

This tool calculates savings due to the addition of an economy cycle on existing HVAC equipment. The repair or replacement of a non-operating economy cycle is not eligible for an incentive.

Take special note of the following:

- **Economy cycle.** Choose whether the compressor runs with the economizer or does not run with the economizer. Note that a dry-bulb controller is assumed to control both types of economy cycles; there are no provisions for an enthalpy controller.

- **Multiple Units.** Multiple existing cooling units/air-handling units may have economy cycles added. These multiple units may be grouped and entered together as long as they meet the following conditions:
  -- The cooling units must be identical in every respect except for size (different model numbers are OK). For example, the efficiencies and system type must be the same.
  -- The area served by multiple units must be similar (e.g., 5–10 ton units serving an interior zone or 3–5 ton units serving a 6000-ft² building). The operating hours must be identical.

- **Building Type.** Select a “predefined” building configuration from the 17 “prototypical” buildings (see Appendix F for detailed descriptions) or define a new building type using the custom building type option. If one of the predefined building types is a fair representation of your project site, you can simply input the building location, square footage of conditioned space, and building operating hours. Note that if you select a predefined building, you accept its predefined cutoff limits for the economy cycle. If these limits are not acceptable, use the custom building approach.

If you use the custom building option, then information on building make-up and internal loads will also be needed. New building types, once defined, will appear on the predefined building list for future use, thus eliminating the need to “redefine” the same building type repeatedly for different measures.

- **Building Location.** From the pull-down menu, select a city that best represents the building location; this will, in turn, automatically select a weather zone. (This program uses the California Energy Commission’s CTZ weather data, which breaks up the state into 17 weather zones.)

### 2.2.5 Variable-Speed Drives for HVAC Fans

This tool addresses variable-speed drives (VSDs) on HVAC supply-air fans. A number of assumptions (stipulations) were made in order to simplify the savings calculations for this common measure:

- The fan is assumed to be on continuously during the building’s operating hours. The tool does not cover intermittent fan operation.
Fan speed is assumed to follow the cooling load but is not allowed to drop below 25% of rated speed. During heating, the fan speed is assumed to always be 100%.

No cooling or heating, and therefore no fan operation, is allowed during the unoccupied period.

Note that the SPC2002 Software utilizes the ASHRAE “simplified bin method” for calculating savings and run time hours. This method lacks the precision, accuracy, and flexibility of more sophisticated “hourly” energy estimation programs. If you believe this method does not fairly represent the project’s energy savings, use the engineering calculation method to determine your energy savings.

Take special note of the following:

- **Multiple Units.** Multiple supply fans may be combined under a single measure (treated as a single fan) if the value entered represents the sum of all supply-air fans with their associated new VSDs. Note that only one drive manufacturer may be entered per measure and the model of the drives (when multiple drives are involved) must be of similar type and applied to fan motors with identical motor efficiency.

- **Building Type.** Select a “predefined” building configuration from the 17 “prototypical” buildings (see Appendix F for detailed descriptions) or define a new building type using the “custom building type” option. If one of the predefined building types is a fair representation of your project site, you can simply input the building location, square footage of conditioned space, and building operating hours.

  If you use the custom building option, then information on building make-up and internal loads will also be needed. New building types, once defined, will appear on the predefined building list for future use, thus eliminating the need to “redefine” the same building type repeatedly for different measures.

  Note that the custom building option must be used if a VSD-modified supply-air fan is used to cool/heat only a portion of a building.

- **Building Location.** From the pull-down menu, select a city that best represents the building location; this will, in turn, automatically select a weather zone. (This program uses the California Energy Commission’s CTZ weather data, which breaks up the state into 17 weather zones.)

2.2.6 Variable-Speed Drives for Process Applications

This tool covers the installation of variable-speed drives (VSDs) for process applications. It includes direct drives (mixers and agitators), pumps, and fans. The pumps can be either positive displacement models that previously used bypass for control or centrifugal pumps with throttle valves. The existing controls for fans can be inlet guide vanes, outlet dampers, or no controls.

Data inputs for existing and proposed motors include:

- **General data,** such as the quantity, location (e.g., 2nd floor) and function (e.g., drive for conveyor belt).

- **Nameplate data.** If the measure includes more than one motor, then all the motors must have equal nameplate ratings. Copies of manufacturer’s specifications that support the proposed motor/drive nameplate values must be submitted to the Utility Administrator with the project application.

- **Operational hours,** i.e., the hours that each motor is actually running. If two or more motors being replaced have unequal hours of operation, then these should be treated separately.
■ **Existing motor power measurements.** These are critical for establishing brake horsepower (BHP, motor load). The preferred method is to measure power in kW, using a true RMS power meter. Next best would be to measure voltage, current, and power factor with a true RMS meter. At a minimum, both the voltage and current must be measured. If the power factor is not measured, the software will estimate a power factor. Ensure that all voltages are measured line-to-line with measurements taken under normal full-load motor operating conditions.

### 2.2.7 High-Efficiency Motors

This tool covers installation of continuous-rated, polyphase squirrel cage induction motors rated from 1 to 200 horsepower. These motors include NEMA Design A and B, three-phase, 230/460 VAC, single-speed (900, 1200, 1800, and 3200 RPM) motors having open drip-proof (ODP) or totally enclosed fan-cooled (TEFC) or explosion-proof (TXPL) enclosures.

This tool establishes the existing motor (baseline) efficiency to correspond to the 1992 Energy Policy Act (EPAct) minimum.

Data inputs for existing and proposed motors include:

- **General data**, such as the location (e.g., basement) and function of existing/replacement motors
- **Nameplate data.** A comprehensive list of manufacturer’s data is provided via pull-down menus. Copies of manufacturer’s specifications that support the proposed motor nameplate values entered into the software must be submitted to the Utility Administrator with the project application.
- **Load type** (e.g., fan, pump, mill, etc.)
- **Estimated hours of operation** under normal load conditions
- **Existing motor power measurements.** These are critical for establishing brake horsepower (BHP, motor load). The preferred method is to measure power in kW, using a true RMS power meter. Next best would be to measure voltage, current, and power factor with a true RMS meter. At a minimum, both the voltage and current must be measured. Ensure that all voltages are measured line-to-line and measurements are taken under normal motor operation conditions. If power factor is not measured, then the software will estimate a power factor. The measured values are used to establish the load on the existing motor.

For multiple motors with different horsepower, treat each motor size as a separate measure.

### 2.2.8 High-Efficiency Air Compressors

This tool covers installation of a high-efficiency air compressor in place of existing equipment of lesser efficiency. Savings are based on data for a wide variety of generic air compressors, compiled as part of the Department of Energy’s Compressed Air Challenge (CAC) program and currently used in the AirMaster+ software program developed for the Department of Energy by Washington State University.

The types and sizes of compressors, associated controls, and pressure ranges accommodated by the CAC program data and available with the estimating tool are shown in Table 2-1 below. The estimating tool does not cover air compressors equipped with variable-speed drives.
Table 2-1. Equipment Included in Air Compressor Estimation Software

<table>
<thead>
<tr>
<th>Compressor Types</th>
<th>Control Types*</th>
<th>Size (hp)</th>
<th>Pressure (psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-stage lubricant-injected rotary screw</td>
<td>Inlet modulation w/o unloading  Inlet modulation w/unloading**  Load/unload  Variable displ. w/unloading**</td>
<td>25–500</td>
<td>100–200</td>
</tr>
<tr>
<td>Two-stage lubricant-injected rotary screw</td>
<td>Inlet modulation w/o unloading  Inlet modulation w/unloading**  Load/unload  Variable displ. w/unloading**</td>
<td>100–500</td>
<td>100–200</td>
</tr>
<tr>
<td>Two-stage lubricant-free rotary screw</td>
<td>Load/unload</td>
<td>50–500</td>
<td>80–150</td>
</tr>
<tr>
<td>Single-stage reciprocating</td>
<td>Load/unload</td>
<td>25–75</td>
<td>80–125</td>
</tr>
<tr>
<td>Two-stage reciprocating</td>
<td>Load/unload</td>
<td>25–400</td>
<td>80–125</td>
</tr>
</tbody>
</table>

* Inlet modulation without unloading will continue to serve as the baseline equipment configuration.
** Unloading occurs below the 75% assumed load point and as such is not relevant.

To provide additional benefit for customers installing two-stage compressors in lieu of less-efficient single-stage machines, the savings calculation for two-stage machines will use a single-stage machine as the baseline for pressure ranges and machine sizes where a single-stage machine could reasonably be applied. Table 2-2 shows the equipment size and pressure ranges where a single-stage machine is used as the baseline for two-stage machines. Note that use of single-stage compressors as the baseline is not applicable to two-stage lubricant-free compressors, since use of a single-stage compressor would not be a likely substitute.

Table 2-2. Condition Summary for Single-Stage Compressor as Baseline

<table>
<thead>
<tr>
<th>Compressor Types</th>
<th>Size (hp)</th>
<th>Pressure (psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-stage lubricant-injected rotary screw</td>
<td>100–500 (all sizes)</td>
<td>100–140</td>
</tr>
<tr>
<td>Two-stage lubricant-free rotary screw</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Two-stage reciprocating</td>
<td>25–75</td>
<td>80–125 (all)</td>
</tr>
</tbody>
</table>

Enter values for monthly operating hours, system operating pressure, and proposed compressor performance parameters, along a brief description of equipment function. Note that this estimating tool does not differentiate between the various geometric control methods (i.e., poppet valve, turn valve, power synch., etc.) since power consumption of these methods does not differ significantly in the area of 75% load.

Copies of manufacturer’s specifications that support the compressor and motor performance values entered must be supplied to the Utility Administrator with the project application submittal.

2.2.9 High-Efficiency Injection Molders

High-efficiency injection molders use variable-speed drives (VSDs) and other energy efficiency techniques to reduce the energy usage of plastic injection molders. Standard-efficiency injection molders use a large hydraulic pump to inject the plastic and operate the molds. The pumps operate at full power continuously, bypassing the fluid when the pressure is not required. The VSD varies the speed of the motor to match the power requirements of the molders, cycling up and down the motor speed.
A second approach uses variable volumes to achieve similar energy savings. Recently, a new type of machine has been introduced that does not use a hydraulic system to generate the pressure to inject the plastic, but instead generates the force with high-torque servomotors. Besides the drive system, other components of the machine such as the heaters have been improved. These machines are referred to as all-electric injection molders and save significantly more energy than the variable-volume/variable-speed machines. All three types of machines are accepted as SPC efficiency measures and are included in the estimation software.

### 2.2.8.1 Data Inputs

Data inputs include model/serial number, machine type, capacity (tons), hourly production rate, and annual operating hours. The annual hours must be the best estimate of the actual hours the machine is producing parts. Copies of manufacturer's specifications that support the proposed nameplate values must be supplied to the Utility Administrator with the project application.

### 2.2.8.2 Basis for Energy Savings

The energy savings estimating tool for high efficiency injection molders uses equations that are based on energy use per pound of plastic produced. These parameters are based on measured performance data, which take into account variations in part size, production rates, and cycle time. Although individual machines may vary from these results, the predicted energy savings can be used for high-efficiency injection molders that produce at least 0.275 pounds of plastic per ton of capacity. The average specific energy use for the four types of injection molders is listed in Table 2-3.

<table>
<thead>
<tr>
<th>Machine Type</th>
<th>Specific Energy Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard hydraulic</td>
<td>0.91 kWh/kg</td>
</tr>
<tr>
<td>Variable-volume hydraulic</td>
<td>0.55 kWh/kg</td>
</tr>
<tr>
<td>Variable-speed hydraulic</td>
<td>0.55 kWh/kg</td>
</tr>
<tr>
<td>All-electric</td>
<td>0.20 kWh/kg</td>
</tr>
</tbody>
</table>

For machines with lower production rates, the energy savings are reduced by 20%. These low-production machines typically produce small, intricate parts requiring longer hold times, thus reducing the energy savings.

The energy savings of the injection molder are based on the existing production rates. The energy savings resulting from any increased production are not eligible for an incentive.

The Project Sponsor is required to document the existing and proposed average production rates (lb/hr) of the injection machines. These rates shall take into account variation in parts produced.

### 2.2.10 Dairy Vacuum Pump Variable-Speed Drives

This tool estimates the potential annual electrical energy savings and peak demand reduction that can be achieved by adding a variable-speed drive (VSD) to a standard dairy vacuum milking system. The program contains efficiency tables for standard- and premium-efficiency motors. Savings estimates are based on the following assumptions:

- The existing standard dairy milking vacuum pump system is significantly oversized and runs at a constant speed. Piping changes are made to move the vacuum system regulator (or...
controller), increase the vacuum system efficiency, and replace and downsize the main vacuum pump.

- The new, smaller vacuum pump motor is controlled by a VSD, which in turn receives feedback from the vacuum system through a pressure transducer. Any additional vacuum pumps and motors are either removed from service or replaced with premium-efficiency models.

- All motors are three phase, 1800 RPM, and operating at 90% load.

### 2.2.9.1 Energy Calculations

This tool estimates existing energy usage using the nameplate horsepower of the vacuum pump motors and the average number of hours the system operates every day.

The annual energy usage is determined as follows:

\[
\text{Energy Usage (kWh)} = \text{Demand} \times \text{Average Daily Operating Hours} \times 365 \text{ days/year}
\]

When a VSD is installed to control a motor, the total energy savings depends on how the load changes over time and the amount of time spent at each load level. Testing at several dairies retrofitted with a VSD to control a downsized vacuum pump motor recorded savings close to half of the expected energy usage for the new system. This estimating tool uses a VSD motor speed and operating time distribution that yields an average annual energy savings of 46.3%. However, the peak demand for the combination of the new motor and a VSD is assumed to be 5% greater than for the new motor alone, due to the energy draw of the VSD controller itself.

### 2.2.9.2 Demand Calculations

The software estimates the existing electrical demand and energy usage using the nameplate horsepower of the vacuum pump motors and the average number of hours the system operates every day. Survey data indicate that most dairy vacuum pump motors run close to 90% load. Thus, the electrical demand of each vacuum pump motor is calculated as follows:

\[
\text{Demand (kW)} = \left[ \text{Motor Horsepower (HP)} \times 0.746 \times 90\% \right] / \text{Motor Efficiency} \%
\]

where 0.746 is the factor used to convert HP to kW, and Motor Efficiency is a value dependent on motor type and load.

### 2.2.9.3 EPAct Savings

The estimated savings calculated by the program exceed the requirements of the national Energy Policy Act (EPAct) of 1992, and are therefore reportable. The software incorporates EPAct motor efficiency requirements to determine the amount of motor replacement energy savings that exceed the 1992 EPAct requirements and qualify for energy efficiency incentives.

### 2.3 Engineering Calculations

No standard form is provided. Under this option, you supply your own calculation back up for each measure in the project. The calculation documentation must be detailed and convincing, and should include step-wise equations, assumptions, and input values, including the following:

- Electronic and hardcopy results of savings estimates, calculations, and any other engineering simulations or analyses used to determine energy savings. Written descriptions of the analyses with explanations of assumptions and calculations must also be included.

- Energy audit results, including the operating schedule of measures and derivation of any baseline conditions used in the savings calculations. If applicable, part-load operating
characteristics of any replaced motors, fans, or other variable-load equipment should also be
provided.

2.3.1 eQUEST® Building Simulation Tool
The three Utility Administrators have funded the development of a building energy simulation
tool, eQUEST for use on the new construction incentive programs. It can be used to estimate
the energy use of a number of building and AC&R measures including AC&R system
improvements, high efficiency glazing, heat pumps (cooling and heating) gas furnaces and many
other energy efficiency measures. The Utility Administrators recommends it use in developing
saving estimates for such measures. The following paragraphs describe eQUEST and how this
free software can be obtained.

eQUEST® is a sophisticated, yet easy to use building energy use analysis tool that provides
professional-level results with an affordable level of effort. This freeware tool was designed to
allow you to perform detailed analysis of today’s state-of-the-art building design technologies
using today's most sophisticated building energy use simulation techniques but without requiring
extensive experience in the "art" of building performance modeling. This is accomplished by
combining a building creation wizard, an energy efficiency measure (EEM) wizard and a
graphical results display module with an enhanced DOE-2-derived building energy use
simulation program.

eQUEST® is supported as a part of the Energy Design Resources program which is funded by
California utility customers and administered by Pacific Gas and Electric Company, San Diego
Gas & Electric, and Southern California Edison, under the auspices of the California Public
Utilities Commission.

More information and a free copy of eQUEST® are available at the following website:
www.energydesignresources.com/tools/equest.html
This website also contains several other tools that may be helpful for SPC Project Sponsors.