ENERGY ASSESSMENT SCREENING FOR YOUR HOME (EASY)

Homeowner Presentation
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Materials</td>
<td>Roof, attic, insulation, windows, doors, and basement/crawlspace</td>
</tr>
<tr>
<td>Heating and Cooling</td>
<td>Heating Ventilation and Air Conditioning (HVAC) systems (i.e. “central air”), room air conditioners, thermostats, fans, and heaters</td>
</tr>
<tr>
<td>Lighting</td>
<td>Light bulbs and lighting fixtures</td>
</tr>
<tr>
<td>Kitchen Appliances</td>
<td>Refrigerator, freezer, oven/stove, dishwasher, and small kitchen appliances</td>
</tr>
<tr>
<td>Laundry Appliances</td>
<td>Washing machine and clothes dryer</td>
</tr>
<tr>
<td>Home &amp; Office Electronics</td>
<td>Televisions, home theater equipment, stereos, computers, gaming equipment, and plug loads</td>
</tr>
<tr>
<td>Indoor Water Usage</td>
<td>Faucets, showers/bathtubs, water heaters and toilets</td>
</tr>
<tr>
<td>Outdoor Water Usage</td>
<td>Landscaping and pools</td>
</tr>
</tbody>
</table>
Building Materials

Keep the outside out, and the inside in!

• To improve the comfort of your home, don’t depend on your AC unit – more insulation in attics, walls, and crawlspaces, better doors and windows, and air sealing can improve the quality of life in your home.

• Keep it smooth, keep it sealed, and keep it efficient! A comprehensive energy audit can ensure that you’re getting the most out of your home system.
Whole House Approach

**Common Air Leaks**
- Air Leaking into the house
- Air Leaking out of the house

**Before**
--Recessed Light
- Duct Register
- Top Plate
- Sill Plate
- Dryer Vent
- Outdoor Faucet

**After**
- Focusing on sealing and improving the house's energy efficiency

**Typical Home Improvements:**
- A. Sealing Air Leaks and Adding Insulation
- B. Improving Heating and Cooling Systems
- C. Sealing Ductwork
- D. Replacing Windows
- E. Upgrading Lighting, Appliances, and Water Heating Equipment
- F. Installing Renewable Energy Systems

Source: U.S. EPA
Building Envelope

Red = Heat

Blue = Cold

Before

After

Location: Minnesota in Winter
Rule of thumb: State code requires ceiling/roof insulation have a minimum R-value = 19 and wall insulation of R-value = 11 for remodels.
Air Ducts

Common Duct Problems

- A) Leaky duct connection
- B) Return leaks
- C) Furniture blocking register
- D) Leaks at furnace & filter slot and duct tape failure
- E) Fallen duct insulation
- F) Supply leaks
- G) Kinks in ductwork restricting airflow

Source: energyStar

Rule of thumb: State code requires ducts have a minimum R-value insulation = 8 for remodels. Duct leakage should be no greater than 6%.

- No insulation around ducts
- Inefficient design

Minimize overlap and turns
Windows

The lower the window U-factor, the less heat you will lose through your windows.

The higher the Visible Transmittance score, the more daylight gets in.

Rule of thumb: State code requires U-factor be no greater than 0.32 and SHGC be no greater than 0.25.

Solar Heat Gain Coefficients (SHGC) are most important in Southern California. The lower the score, the better the window is at keeping the sun’s heat outside!
Window Film

Excess Solar Heat and Ultraviolet Radiation

HOW FILM WORKS

Visible Light
Weather Stripping

DOOR

ADHESIVE-BACKED FOAM

JAMB

DOOR STOP

EASY
Heating and cooling consumes the most energy in your home.

• Upgrade to an ENERGY STAR rated HVAC model, which can save up to 44% of energy.
• “Right sizing” of an HVAC system is necessary to keep bills low, while adequately conditioning your home.
• Whole House shading with trees or trellises can reduce heating and cooling loads.
SEER is the efficiency rating associated with HVAC units. The higher the SEER rating, the more efficient and cost effective your HVAC unit runs!
Heating & Cooling

Rule of thumb: Heating and cooling can account for as much as 50% of your energy bills.

- Make sure your building envelope is tight to keep conditioned air inside.
- Trees that offer shading around the home can help keep it cool.
- HVAC units should be ENERGY STAR certified and maintained.
- Programmable thermostats allow you to control the temperature in your home.

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Lighting

Here’s a Bright Idea.

• Upgrade light bulbs, especially in high-use areas. LED light bulbs use 90% less energy than incandescent bulbs.

• Install occupancy sensors in hallways, kitchens, and bathrooms.
**Lighting - Types**

**Incandescent**
- Lifespan – Less than 1 year
- Average Annual Operating Cost - $11.17

**CFL**
- Lifespan – 9 years
- Average Annual Operating Cost - $2.61

**LED**
- Lifespan – 22 years
- Average Annual Operating Cost - $1.86

*3 hours of lighting per day at $0.17/kWh*

Rule of thumb: LEDs can cost as little as $2 more than CFLs, but generally last five times as long.
Lighting - Types

You would need to purchase 25 incandescent bulbs to last as long as 1 LED bulb.
Kitchen Appliances

Saving Energy at Breakfast, Lunch, and Dinner!

• Regularly clean fridge condenser coils and replace gasket when needed.

• Upgrade to ENERGY STAR appliances. ENERGY STAR rated kitchen appliances use less energy and can save up to $1300 over the life of the appliance.
Rule of thumb: Refrigerators typically last 13 to 19 years. Consider replacement if your refrigerator was purchased in 2002 or earlier.

ENERGY STAR appliances use 20-30% less energy!!!
Laundry Appliances

Less water, less electricity, lower bills!

• “Launder Smart” by only washing and drying full loads. Air dry clothes whenever possible.

• Upgrade to ENERGY STAR appliances. ENERGY STAR rated washers and dryers use 20% less energy.

• Use cold water to wash clothes. This will reduce energy use by 90%.
“Launder Smart”

- Wash with cold water
- Use the moisture sensor option for drying
- Wash full loads, but do not overfill
Keep your office as efficient as you!

• Install power strips. Power strips provide a central hub to quickly turn off electronics not in use.
• Upgrade to ENERGY STAR televisions and monitors. ENERGY STAR rated televisions use less energy and cost significantly less money to operate.
• Beware of phantom loads. Some appliances, such as televisions, monitors, and chargers, consume energy even when not in use.
## Phantom Load

Some devices draw power even when they are not in use or are switched off. These are called phantom loads. The table below shows power costs of devices in stand-by mode for an entire month.

<table>
<thead>
<tr>
<th>Appliance or device</th>
<th>Phantom Load (Watts)</th>
<th>Phantom Cost per month ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop PC (includes computer and monitor)</td>
<td>5</td>
<td>$.67</td>
</tr>
<tr>
<td>3-in-1 printer</td>
<td>6</td>
<td>$.80</td>
</tr>
<tr>
<td>Plasma television</td>
<td>3</td>
<td>$.40</td>
</tr>
<tr>
<td>Digital cable box</td>
<td>35</td>
<td>$4.66</td>
</tr>
<tr>
<td>Cellphone charger (when not charging)</td>
<td>1</td>
<td>$.13</td>
</tr>
<tr>
<td>Microwave oven</td>
<td>3</td>
<td>$.40</td>
</tr>
<tr>
<td>Coffee pot</td>
<td>1</td>
<td>$.40</td>
</tr>
</tbody>
</table>

Total watts consumed by appliances and electronics in stand-by: 54 Watts

This equates to $7.46 per month or $89.52 per year!
### Advanced “Smart” Power Strips

<table>
<thead>
<tr>
<th>Timer Power Strip</th>
<th>Activity Monitor Power Strip</th>
<th>Remote Switch Power Strip</th>
<th>Masterless Power Strip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Strip</td>
<td>Power strips automatically turns off outlets based on present schedule.</td>
<td>Power strips looks for signs of activity in the room, and turns off outlets if none is detected.</td>
<td>When a primary device (such as a computer or TV) is turned off by the user, the power strip automatically turns off the controlled outlets where the peripheral devices (such as the printer or game console) are plugged in.</td>
</tr>
</tbody>
</table>
Indoor Water Usage

Every drop counts, save water to save money!
• Save water at the source by installing faucet aerators, thermostatic control valves and low-flow showerheads. These simple devices can save up to 60% of water used in the home.
• Upgrading an old water heater (10 years or older) to an ENERGY STAR certified model has the shortest payback period of any appliance upgrade.
Indoor Water Usage

Fixing leaky sinks and toilets can save up to 30-50 gallons per day.

Installing a high-efficiency toilet can save up to 19 gallons per day.

Typical Household Indoor Water Use

- Flushing: 16%
- Laundry: 19%
- Shower: 29%
- Kitchen: 22%
- Basin: 10%
- Other: 4%

Fixing leaky sinks and toilets can save up to 30-50 gallons per day.
Indoor Water Usage

Sink Aerator + Low-flow Showerhead + Thermostatic Control Valve

Estimated Water Use Reduction of 25-60%
Outdoor Water Usage

Approximately 70% of water usage can occur outside the home!

- Smart landscaping means using less water. Install a smart controller system for irrigation, collect water with a rain barrel, and plant drought-resistant plants.
- Pools and spas are water intensive; install a variable speed pool pump and pool cover to reduce energy and water usage.
Smart Landscaping

Turf removal rebates available at $2 per square foot removed in participating cities.
Smart Landscaping – Drought Friendly

Use a rain barrel to water drought resistant plants.
Loading Order

Fundamentals
- Insulation
- Air & Duct Sealing
- Lighting & Plug Loads
- Appliances
- Behavior

Major Systems
- Heating
- Air Conditioning
- Ventilation
- Water Heating
- Windows

Renewables
- Solar PV
- Solar Thermal
- Wind
- Water Catchment
Rebates

- Energy Upgrade California/ Home Upgrade
- Southern California Edison (SCE)
- Southern California Gas Company (SoCalGas)
- SoCal Water$mart Rebates
- San Gabriel Valley Municipal Water District Rebates
The Energy Network’s Home Upgrade

Participate in Home Upgrade by choosing any three measures from this list.

Save energy on bills and earn up to $3,000 in rebates!
Energy Upgrade California’s Advanced Home Upgrade

- An Advanced Home Upgrade goes beyond sealing the building’s envelope (although some of the advanced upgrades will include building envelope retrofits).

- It requires a comprehensive energy audit before and after the retrofits are installed.

- Rebates are calculated using energy modeling software and are based off percentages of energy savings from the baselines.

- Additional eligible items include cool roof, whole house fan, electric hardwiring, tankless water heater, and more!

- Rebates of up to $6,500 (or more) available.
## Energy Upgrade – Home vs. Advanced

### Home Upgrade

- **Available upgrades are prescriptive**
- Up to $3,000 in rebates
- Focuses on building envelope
- Need certified contractor
- Menu-based approach

### Advanced Home Upgrade

- **Available upgrades are more customizable**
- Up to $6,500 in rebates
- Includes building envelope upgrades
- Need certified contractor
- Requires energy audit
- Rebates based on energy savings

*Both programs require a carbon monoxide detector be present or installed, a thermostatic control valve be present or installed, and a combustion safety test performed before and after work is completed. Any project involving duct work must include both the duct sealing or replacement measure and the duct insulation measure. If replacing a Central Air Conditioner and/or Central Furnace unit, the project must include Duct Insulation and Duct Sealing or Duct Replacement and Duct Sealing.*
SoCal Edison Rebates

- Rebates and incentives can be credited to your bill, or a check can be sent to you.

- Process
  - Go to SCE website and click rebates, click product; to find a product use the “Click here to Select Your Product”.
  - Go to store to purchase product.
  - Go back to SCE.com, click rebate, select a product.
    - Fill out application online, scan receipt and submit rebate application.
      - Trouble-shooting: email HEERApplication@SCE.com
    - Print out application for HVAC systems only, featured under Related Documents (bottom left); mail in with copy of receipt after installation.
    - Takes 4-6 weeks to receive rebates (expect in 8-10 weeks when busy).

Questions: 1-800-736-4777 or SCE.com/HEER
# SoCal Edison Rebates

<table>
<thead>
<tr>
<th>Product/Program</th>
<th>Rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Thermostat</td>
<td>$75</td>
</tr>
<tr>
<td>Hybrid Electric Heat Pump Water Heater</td>
<td>Up to $200</td>
</tr>
<tr>
<td>Variable Speed Pool Pump &amp; Motor Rebate</td>
<td>$200</td>
</tr>
<tr>
<td>Window Evaporative Cooler</td>
<td>Up to $200</td>
</tr>
<tr>
<td>Evaporative Cooler</td>
<td>Up to $400</td>
</tr>
<tr>
<td>Air Conditioner</td>
<td>Up to $750</td>
</tr>
</tbody>
</table>
SoCal Gas Rebates

- Rebates can be through the manufacturers or through SoCal Gas directly.
  - Rebates through manufacturers: Tankless Water Heater (Up to $200), and Natural Gas Gravity Wall Furnace ($50).
  - Manufacturers can be found at [http://www.socalgas.com/for-your-home/rebates/](http://www.socalgas.com/for-your-home/rebates/).
  - All other rebates are through utility and applications can be filled out online.

<table>
<thead>
<tr>
<th>Rebate Products</th>
<th>Rebate ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Efficiency Natural Gas Storage Water Heaters</td>
<td>$30 - $100 depending on efficiency</td>
</tr>
<tr>
<td>Energy Star Certified Clothes Washer</td>
<td>$35, $50, $75 depending on efficiency</td>
</tr>
<tr>
<td>Natural Gas Dryer</td>
<td>$50</td>
</tr>
<tr>
<td>Low-flow Showerhead</td>
<td>$15</td>
</tr>
<tr>
<td>Attic or Wall Insulation</td>
<td>$0.15/sq. ft.</td>
</tr>
<tr>
<td>Energy Star Certified Natural Gas Furnace</td>
<td>$150 - $200</td>
</tr>
<tr>
<td>Basic Low-flow Showerhead and Three Sink Aerators</td>
<td>Free</td>
</tr>
</tbody>
</table>
SoCal Water$mart Rebates

• Submit an online application at https://socalwatersmart.com for any of the following upgrades:

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Rebate Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-efficiency washing machine</td>
<td>Start at $85</td>
</tr>
<tr>
<td>High-efficiency toilets</td>
<td>Start at $100</td>
</tr>
<tr>
<td>Rotating sprinkler nozzles</td>
<td>Start at $4 per nozzle; must buy a minimum of 15</td>
</tr>
<tr>
<td>Weather-based irrigation controllers</td>
<td>Start at $80 per controller</td>
</tr>
<tr>
<td>Rain barrels</td>
<td>Start at $75 per barrel</td>
</tr>
</tbody>
</table>
San Gabriel Valley Municipal Water District Rebates

In Alhambra and Monterey Park, the San Gabriel Valley Municipal Water District rebates are available for water-efficient washing machines for $150 and smart irrigation controllers for a rebate of up to $150.

For more information visit: http://www.sgvmwd.org/save/rebates.htm
Financing

- HERO
- Cool Comfort Financing
- Home Energy Loans
- Statewide Clean Energy Upgrade
**HERO**

HERO is a PACE program – this means repayments are made through property taxes. If the property is sold before the HERO Financing is paid in full, the remaining payments can be passed on to a new property owner.

<table>
<thead>
<tr>
<th>Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rates</td>
<td>5.59% to 8.95%; depending on the terms.</td>
</tr>
<tr>
<td>Payment Terms</td>
<td>5–20 Years</td>
</tr>
<tr>
<td>Types of Units</td>
<td>Commercial or Residential</td>
</tr>
<tr>
<td>Available Upgrades</td>
<td>Over 900,000 energy efficiency and solar products.</td>
</tr>
<tr>
<td>Financing Amounts</td>
<td>Amounts will vary per project.</td>
</tr>
<tr>
<td>Type of Loan</td>
<td>Unsecured, a UCC-1 lien may be required.</td>
</tr>
</tbody>
</table>
Cool Comfort Financing

Projects must include one of the following duct improvements to ensure HVAC efficiency:

- Combination of duct sealing and duct insulation sealed ≤ 10% and insulated ≥ R-8.
- Duct replacement sealed ≤ 6% air leakage with ≥ R-8 greater replacement ducts.

<table>
<thead>
<tr>
<th>Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rates</td>
<td>As low as 4.99%</td>
</tr>
<tr>
<td>Payment Terms</td>
<td>5-15 Years</td>
</tr>
<tr>
<td>Types of Units</td>
<td>Single-family Home (attached or detached)</td>
</tr>
<tr>
<td>Available Upgrades</td>
<td>New HVAC units, Heat Pump, duct insulation, and wall insulation</td>
</tr>
<tr>
<td>Financing Amounts</td>
<td>$2,500-$50,000</td>
</tr>
<tr>
<td>Type of Loan</td>
<td>Unsecured, a UCC-1 lien may be required</td>
</tr>
<tr>
<td>Eligibility</td>
<td>The property must be served by SoCal Edison or SoCal Gas.</td>
</tr>
</tbody>
</table>

*Must have central, forced-air HVAC system and is not heated by propane fuel.
# Home Energy Loans

<table>
<thead>
<tr>
<th>Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rates</td>
<td>4.99%, 5.99%, 6.99%</td>
</tr>
<tr>
<td>Payment Terms</td>
<td>5-15 Years</td>
</tr>
<tr>
<td>Types of Units</td>
<td>Single-family detached</td>
</tr>
<tr>
<td>Available Upgrades</td>
<td>Energy efficiency projects or solar</td>
</tr>
<tr>
<td>Financing Amounts</td>
<td>$2,500-$50,000</td>
</tr>
<tr>
<td>Type of Loan</td>
<td>Unsecured, a UCC-1 lien may be required</td>
</tr>
<tr>
<td>Eligibility</td>
<td>Enrolled in Home Upgrade program</td>
</tr>
<tr>
<td>Benefit</td>
<td>Same day financing</td>
</tr>
</tbody>
</table>

Have questions? For more information, call (877) 785-2237 or email homeupgrade@theenergynetwork.com
Statewide Clean Energy Upgrade Finance Program

Qualified contractors must be participants in Energy Upgrade California and BPI certified. Energy assessment needs to show improvement of 10% or more in energy usage from proposed energy efficiency measures. Solar can be done concurrently or after energy efficiency measures.

Details

<table>
<thead>
<tr>
<th>Details</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rates</td>
<td>4.99% - 6.99%</td>
</tr>
<tr>
<td>Payment Terms</td>
<td>5-15 Years</td>
</tr>
<tr>
<td>Types of Units</td>
<td>Single-family detached</td>
</tr>
<tr>
<td>Available Upgrades</td>
<td>Energy efficiency projects or solar</td>
</tr>
<tr>
<td>Financing Amounts</td>
<td>$2,500-$50,000</td>
</tr>
<tr>
<td>Type of Loan</td>
<td>Unsecured, a UCC-1 lien may be required</td>
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Have questions? For more information call (818) 993-6328, or email: info@matadors.org
## Financing – Summary

<table>
<thead>
<tr>
<th></th>
<th>HERO</th>
<th>Cool Comfort Financing</th>
<th>Home Energy Loans</th>
<th>Statewide Clean Energy Upgrade Finance Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rates</strong></td>
<td>5.59%-8.95%; varies</td>
<td>As low as 4.99%</td>
<td>4.99%-6.99%</td>
<td>4.99%-6.99%</td>
</tr>
<tr>
<td><strong>Credit Check</strong></td>
<td>Not Required</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td><strong>Available Upgrades</strong></td>
<td>Over 900,000 products all related to improved efficiency or power generation</td>
<td>HVAC units, Furnaces, Heat Pumps, and Duct Insulation</td>
<td>Energy Efficiency Projects or Solar</td>
<td>Energy Efficiency Projects or Solar</td>
</tr>
<tr>
<td><strong>Repayment Length</strong></td>
<td>5-20 Years</td>
<td>5-15 Years</td>
<td>5-15 Years</td>
<td>5-15 Years</td>
</tr>
<tr>
<td><strong>Financing Amounts</strong></td>
<td>Varies</td>
<td>$2,500-$50,000</td>
<td>$2,500-$50,000</td>
<td>$2,500-$50,000</td>
</tr>
<tr>
<td><strong>Payment Type</strong></td>
<td>Property Tax</td>
<td>Monthly Payment</td>
<td>Monthly Payment</td>
<td>Monthly Payment</td>
</tr>
</tbody>
</table>
SoCal Edison Programs

- Tier Pricing System
- Demand Response
- Save Power Days
- Summer Discount Plan
- Time-of-Use

TOU-D-A Pricing and Time Periods

- **Summer**
  - 8 a.m. - 2 p.m.: 28¢
  - 2 p.m. - 8 p.m.: 44¢
  - 8 p.m. - 10 p.m.: 28¢
  - 10 p.m. - 8 a.m.: 13¢

- **Winter**
  - 8 a.m. - 2 p.m.: 28¢
  - 2 p.m. - 8 p.m.: 33¢
  - 8 p.m. - 10 p.m.: 28¢
  - 10 p.m. - 8 a.m.: 14¢

Monthly Baseline Credit: 10¢ per Baseline kWh
Daily Basic Charge: 3¢
Minimum Daily Charge: 33¢

**Summer Rates:**
June through September, 4 months

**Winter Rates:**
October through May, 8 months

Price/kWh:
- Green: Super Off-Peak
- Light Orange: Off-Peak
- Orange: On-Peak

Tomorrow is a **Save Power Day**
2 p.m. - 6 p.m.
Residential rates use a Three-Tier Price Structure

Tier 1
- $0.16 Baseline kWh

Tier 2
- $0.23 101% to 200% over Baseline

Tier 3
- $0.29 More than 200% over Baseline

Reducing energy usage by 20% can lower your energy bills by 40%!
**Sample Bill**

This area of your bill will show the Tier of energy consumption, and pricings per kWh.
Demand Response Programs

• Save Power Days
  • To calculate your earned bill credits, SoCal Edison compares your usage during the Save Power Day event to the 3 highest usage days for the previous 5 days during the same 2 p.m. to 6 p.m. time frame. If your usage is lower on the Save Power Day, you’ll earn a bill credit of $0.75 per kilowatt-hour (kWh) reduced. That can add up to big savings.

• Summer Discount Plan
  • When you participate in the Summer Discount Plan, you save by voluntarily allowing SoCal Edison (SCE) to shut down your A/C for up to 6 hours a day during “energy events” SCE may call during periods of high electricity demand, or emergencies. SCE supplies and install a device on your home or central-A/C unit to remotely shut it off during energy events.

• Time-of-Use
  • There are many reasons why a TOU rate may work better for you: Take advantage of lower rates on weekends, holidays and evening hours. If you can reduce your electricity usage during on-peak hours, you’ll be able to take advantage of lower rates during other times of the day/year. Your annual energy costs may be lower – while bills may be higher in the summer (June - September), this can be offset by lower winter bills (October - May).