CUPERTINO

CITY OF CUPERTINO

CLIMATE ACTION PLAN

APPENDIX E – Water Conservation and Energy Efficiency Toolkit

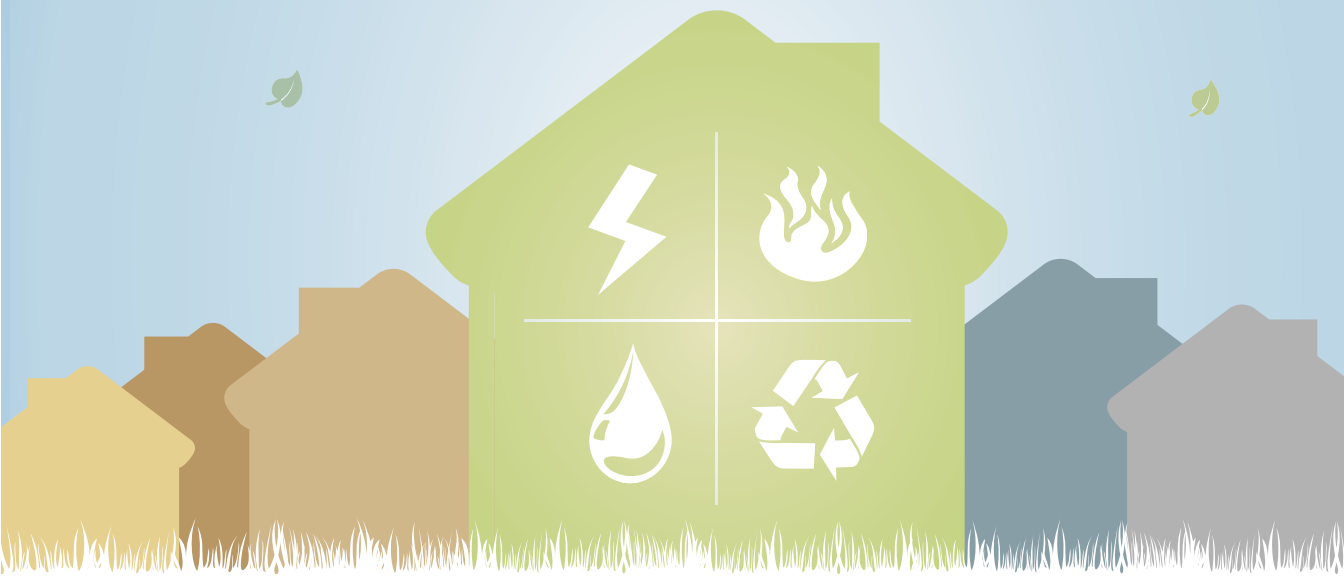
SILICON VALLEY ENERGY WATCH

Do-It-Yourself

Home Energy Saving Toolkit

USER GUIDE

The energy- and water-saving toolkit is designed for library patrons and will help you save money on your utility bills while conserving vital resources.



Participating Libraries

San José Public Library

santa clara county library district

City of Sunnyvale California

Brought to you by:

Silicon Valley energy watch

PG&E Pacific Gas and Electric Company®

City of San José Capital of Silicon Valley Environmental Services

As a part of the State's energy efficiency portfolio funded by California utility customers, Silicon Valley Energy Watch (SVEW) exists to help residents, businesses, and public agencies throughout Santa Clara County save energy easily and cheaply. SVEW is implemented by the City of San José Environmental Services Department in partnership with Ecology Action. This program is funded by California utility customers and administered by PG&E under the auspices of the California Public Utilities Commission. "PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation.

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Table of Contents

Silicon Valley Energy Watch (SVEW)

SVEW serves residents, businesses, and public entities throughout Santa Clara County with energy efficiency resources and education. SVEW initiatives include the Silicon Valley Energy Map, the Community Energy Champions Grant, and HomeBiz. To learn more, visit **svenergywatch.org**.

Kill-A-Watt Library Lending Program

In 2010, SVEW made the Kill-A-Watt® electricity meters available at all libraries in Santa Clara County for library patrons to borrow at no cost, so that residents, educators, and others could learn more about their energy use and make smarter choices at home and at work. The meters were an instant hit, with wait-lists at most libraries and nearly 400 checkouts in 2012.

Do-It-Yourself (DIY) Home Energy Saving Toolkit Program

In partnership with the City of Cupertino, Santa Clara County Library District, Santa Clara Valley Water District, and Acterra (a local environmental nonprofit), SVEW is implementing another library lending program: SVEW Do-It-Yourself (DIY) Home Energy Saving Toolkit to help you take charge of your home's energy and water use and reduce your utility bills.

The City of Cupertino approached SVEW in 2012 with the idea to create a DIY Home Energy Efficiency Toolkit that would mirror the Acterra Green@Home Program running in their community. Green@Home provides free HouseCalls, where trained volunteers install energy- and water-savings devices in homes throughout the Bay Area. Nearly 250 HouseCalls were conducted in Cupertino, and the City of Cupertino decided to expand the program with a DIY Toolkit that could be checked out from the local library. In partnership with the Santa Clara County Library District, Santa Clara Valley Water District, and Acterra, a Cupertino pilot DIY Toolkit was born. The program is now available countywide as the SVEW DIY Home Energy Saving Toolkit. To learn more about Acterra, or to become a Green@Home volunteer, visit **acterra.org/green@home**. To explore other City of Cupertino environmental programs, visit **cupertino.org/green**.

Now, the Toolkit and User Guide are ready for you! The Guide walks you through each step; enables you to calculate your estimated savings; and provides additional tips for "going green" in your daily life. Whether your goal is to save money, protect the environment, or embark on a fun home project, we invite you to turn the pages and learn all you can.

Let's get started!

As a part of the State's energy efficiency portfolio funded by California utility customers, Silicon Valley Energy Watch (SVEW) exists to help residents, businesses, and public agencies throughout Santa Clara County save energy easily and cheaply. SVEW is implemented by the City of San José Environmental Services Department in partnership with Ecology Action. This program is funded by California utility customers and administered by PG&E under the auspices of the California Public Utilities Commission. "PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation.

DIY Toolkit Contents

Equipment *- For you to keep and install in your home*

4 Compact Fluorescent Light Bulbs (CFLs) - Use to replace incandescent bulbs in high-use fixtures.

Weatherstripping - Helps seal air gaps in windows and doors.

Outlet Gaskets - Use to seal the void around your outlets and prevent heat loss.

Low-Flow Showerhead - Replace your current showerhead with this 2.0 gallons per minute (gpm) showerhead to save water.

3 Low-Flow Faucet Aerators - The Toolkit provides two 0.5 gpm aerators for your bathroom sinks and one 1.5 gpm aerator for your kitchen sink. These aerators are a standard size (15/16") and will fit most faucets, but may not fit specialty ones.

Water Leak Detection Dye Tablets (not for consumption) - Identify leaks in your toilet tanks.

Tools *- To be returned to the library once you are finished with the kit*

Kill-A-Watt® Meter - Measures the energy use of appliances and equipment, and helps you understand your home's "plug load" as a share of overall energy use.

Infrared Laser Thermometer - Checks for heat loss in trouble spots such as windows, vents, and door jams.

Refrigerator Thermometer - Enables you to monitor the temperature in your refrigerator.

Painter's Tape - Wraps around the Pliers to help prevent scratching the aerators or showerhead during installation.

Thermometer - Checks the temperature of your hot water supply.

Pliers - Replaces old faucet aerators and showerheads with new ones.

Pipe Thread Seal Tape (plumber's tape) - Prevents leaks in your faucets and showerheads.

Water Flow Rate Bag - Measures the true rate of flow in gallons per minute of your faucets and showers.

Also included in the Toolkit is a Data Tracking Sheet. Using the monitoring tools above, you can record your energy use data and actions on this sheet to help you track the energy and water use of your various appliances and equipment. Return one copy to the library so that SVEW can record how much electricity and water the toolkits are helping our community to save.

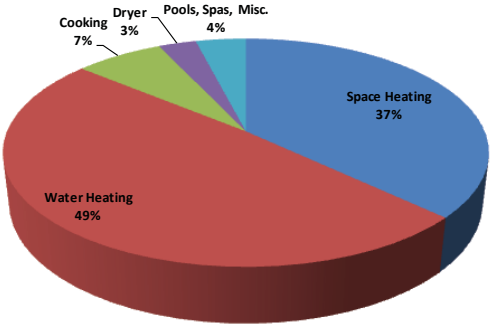
This symbol indicates steps where you will use the Toolkit tools and equipment.

Introduction to Energy Use

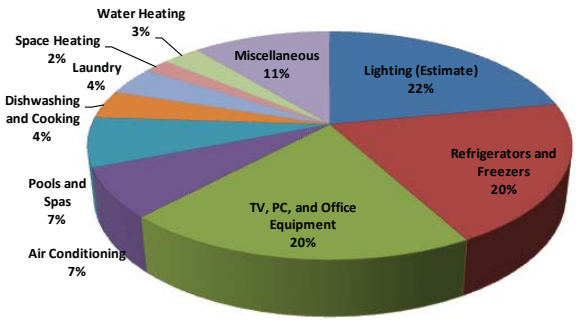
Average Household Use of Energy in California

Knowing how energy is used in your home will help you take steps to reduce your use. These pie charts show how the average household in California uses electricity and natural gas.

Statewide Average Natural Gas Use Per Household
(354 therms per Household)



Statewide Average Electricity Use Per Household
(6,296 kWh per Household)



Source: 2009 California Residential Appliance Saturation Study

How Much Energy Will This Toolkit Help Me Save?

We all use our homes and appliances differently, so predicting the precise amount of energy savings that you can achieve by using this Toolkit is difficult. For example, EnergyStar® estimates that replacing one incandescent bulb with an EnergyStar® Certified CFL or LED bulb can save you anywhere from $40 to $135 in electricity costs over the bulb's life*—the actual amount depends on how often you use the light, your electricity rate, and more.

To get a basic estimate of how much you can save, use the Data Tracking Sheet included in this Toolkit to calculate your expected savings.

*Based on national averages

Energy Literacy: Understanding Units That Measure Energy

Watt (W) - A watt is the basic unit of power used to measure electricity capacity and is equivalent to one joule per second. Incandescent light bulbs are rated on their capacity to produce light—the higher the rating (e.g., 40, 60, 100W), the brighter the light. CFL bulbs use far less watts (e.g., 23 to 30W) to produce the same amount of light.

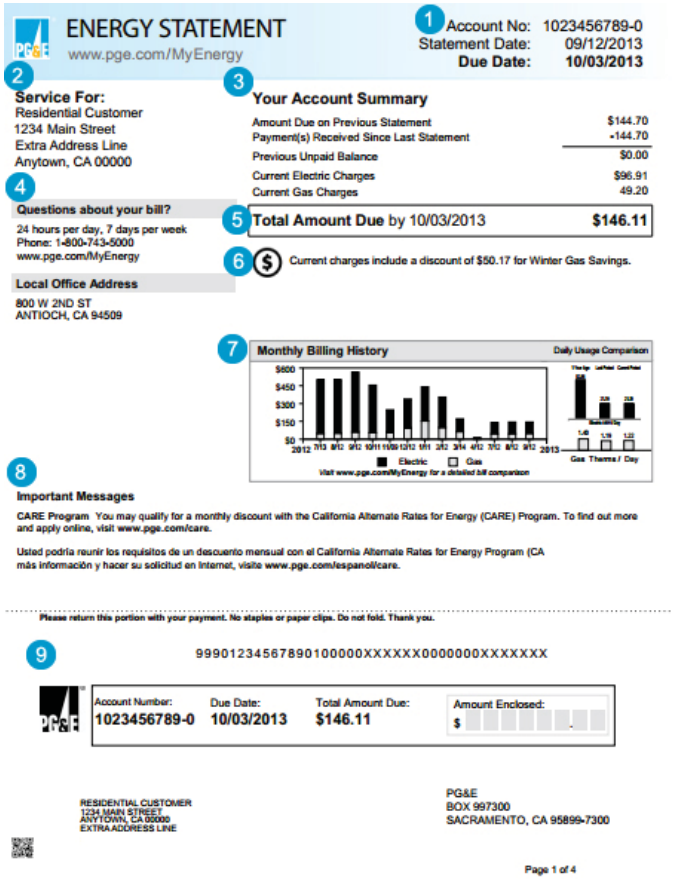
Kilowatt (kW) - A kilowatt is 1,000 watts.

Kilowatt hour (kWh) - A kilowatt hour is 1,000 watts used for one hour (power x time). It is the unit of energy most commonly used on household electricity meters. For example, a 100W incandescent bulb left on for 10 hours is equal to 1 kWh (100W x 10 hrs = 1,000 Wh = 1 kWh). In 2011, the typical PG&E residential customer used 540 kWh per month per household.

Therm - A therm is the energy equivalent of burning 100 cubic feet of natural gas. The typical PG&E residential customer uses an average of 34 therms per month per household.

Understanding Your PG&E Bill

PG&E Bill Features



ENERGY STATEMENT
www.pge.com/MyEnergy

1 Account No: 1023456789-0
Statement Date: 09/12/2013
Due Date: 10/03/2013

2 **Service For:**
Residential Customer
1234 Main Street
Extra Address Line
Anytown, CA 00000

3 **Your Account Summary**

Amount Due on Previous Statement	$144.70
Payment(s) Received Since Last Statement	-144.70
Previous Unpaid Balance	$0.00
Current Electric Charges	$96.91
Current Gas Charges	49.20
5 Total Amount Due by 10/03/2013	**$146.11**

4 **Questions about your bill?**
24 hours per day, 7 days per week
Phone: 1-800-743-5000
www.pge.com/MyEnergy

Local Office Address
800 W 2ND ST
ANTIOCH, CA 94509

6 Current charges include a discount of $50.17 for Winter Gas Savings.

7 **Monthly Billing History**
Daily Usage Comparison
$600 $450 $300 $150 $0
2012 7/13 8/12 9/12 10/11 11/09 12/12 1/11 2/12 3/14 4/12 7/12 8/12 9/12 2013
Electric Gas
Visit www.pge.com/MyEnergy for a detailed bill comparison
Gas Therms / Day

8 **Important Messages**
CARE Program You may qualify for a monthly discount with the California Alternate Rates for Energy (CARE) Program. To find out more and apply online, visit www.pge.com/care.

Usted podría reunir los requisitos de un descuento mensual con el California Alternate Rates for Energy Program (CA más información y hacer su solicitud en Internet, visite www.pge.com/espanol/care.

Please return this portion with your payment. No staples or paper clips. Do not fold. Thank you.

9 99901234567890100000XXXXXX0000000XXXXXX

Account Number:	Due Date:	Total Amount Due:	Amount Enclosed:
1023456789-0	10/03/2013	$146.11	$

RESIDENTIAL CUSTOMER
1234 MAIN STREET
ANYTOWN, CA 00000
EXTRA ADDRESS LINE

PG&E
BOX 997300
SACRAMENTO, CA 95899-7300

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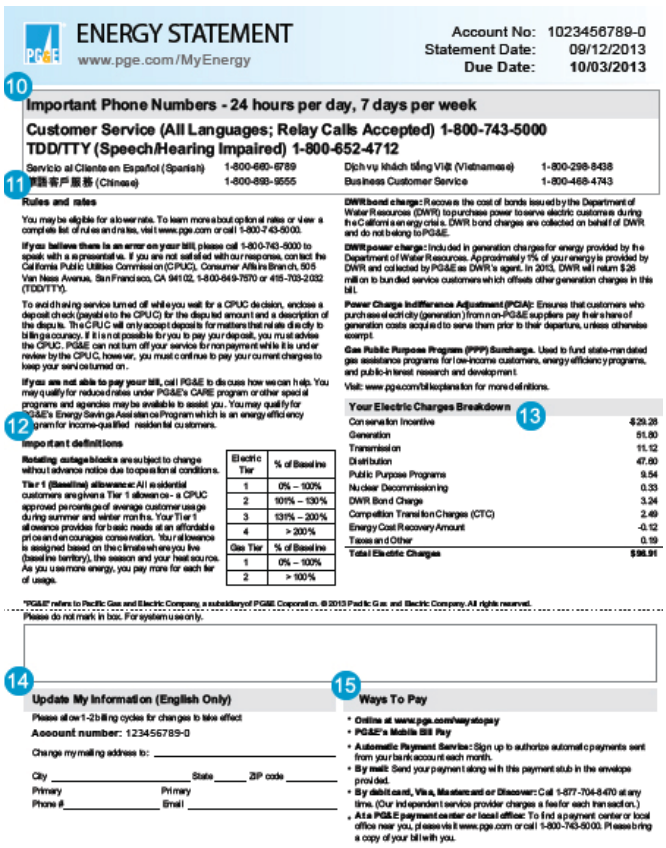

ENERGY STATEMENT
www.pge.com/MyEnergy

Account No: 1023456789-0
Statement Date: 09/12/2013
Due Date: 10/03/2013

10 **Important Phone Numbers - 24 hours per day, 7 days per week**
Customer Service (All Languages; Relay Calls Accepted) 1-800-743-5000
TDD/TTY (Speech/Hearing Impaired) 1-800-652-4712

Servicio al Cliente en Español (Spanish)	1-800-660-6789	Dịch vụ khách tiếng Việt (Vietnamese)	1-800-298-8438
11 (Chinese)	1-800-893-9555	Business Customer Service	1-800-468-4743

Rules and rates
You may be eligible for a lower rate. To learn more about optional rates or view a complete list of rules and rates, visit www.pge.com or call 1-800-743-5000.

If you believe there is an error on your bill, please call 1-800-743-5000 to speak with a representative. If you are not satisfied with our response, contact the California Public Utilities Commission (CPUC), Consumer Affairs Branch, 505 Van Ness Avenue, San Francisco, CA 94102, 1-800-649-7570 or 415-703-2032 (TDD/TTY).

To avoid having service turned off while you wait for a CPUC decision, enclose a deposit check (payable to the CPUC) for the disputed amount and a description of the dispute. The CPUC will only accept deposits for matters that relate directly to billing accuracy. If it is not possible for you to pay your deposit, you must advise the CPUC. PG&E can not turn off your service for non-payment while it is under review by the CPUC, however, you must continue to pay your current charges to keep your service turned on.

If you are not able to pay your bill, call PG&E to discuss how we can help. You may qualify for reduced rates under PG&E's CARE program or other special programs and agencies may be available to assist you. You may qualify for PG&E's Energy Savings Assistance Program which is an energy efficiency program for income-qualified residential customers.

12 **Important definitions**
Rotating outage blocks are subject to change without advance notice due to operational conditions.

Tier 1 (Baseline) allowance: All residential customers are given a Tier 1 allowance - a CPUC approved percentage of average customer usage during summer and winter months. Your Tier 1 allowance provides for basic needs at an affordable price and encourages conservation. Your allowance is assigned based on the climate where you live (baseline territory), the season and your heat source. As you use more energy, you pay more for each tier of usage.

Electric Tier	% of Baseline
1	0% – 100%
2	101% – 130%
3	131% – 200%
4	> 200%
Gas Tier	**% of Baseline**
1	0% – 100%
2	> 100%

DWR bond charge: Recovers the cost of bonds issued by the Department of Water Resources (DWR) to purchase power to serve electric customers during the California energy crisis. DWR bond charges are collected on behalf of DWR and do not belong to PG&E.

DWR power charge: Included in generation charges for energy provided by the Department of Water Resources. Approximately 1% of your energy is provided by DWR and collected by PG&E as DWR's agent. In 2013, DWR will return $26 million to bundled service customers which offsets other generation charges in this bill.

Power Charge Indifference Adjustment (PCIA): Ensures that customers who purchase electricity (generation) from non-PG&E suppliers pay their share of generation costs acquired to serve them prior to their departure, unless otherwise exempt.

Gas Public Purpose Program (PPP) Surcharge. Used to fund state-mandated gas assistance programs for low-income customers, energy efficiency programs, and public interest research and development.

Visit: www.pge.com/billexplanation for more definitions.

13 **Your Electric Charges Breakdown**

Conservation Incentive	$-29.28
Generation	51.80
Transmission	11.12
Distribution	47.80
Public Purpose Programs	9.54
Nuclear Decommissioning	0.33
DWR Bond Charge	3.24
Competition Transition Charges (CTC)	2.49
Energy Cost Recovery Amount	-0.12
Taxes and Other	0.19
Total Electric Charges	**$96.91**

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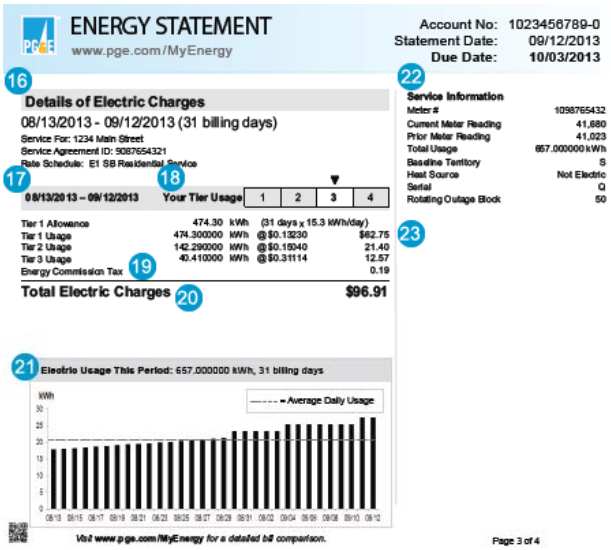
Please do not mark in box. For system use only.

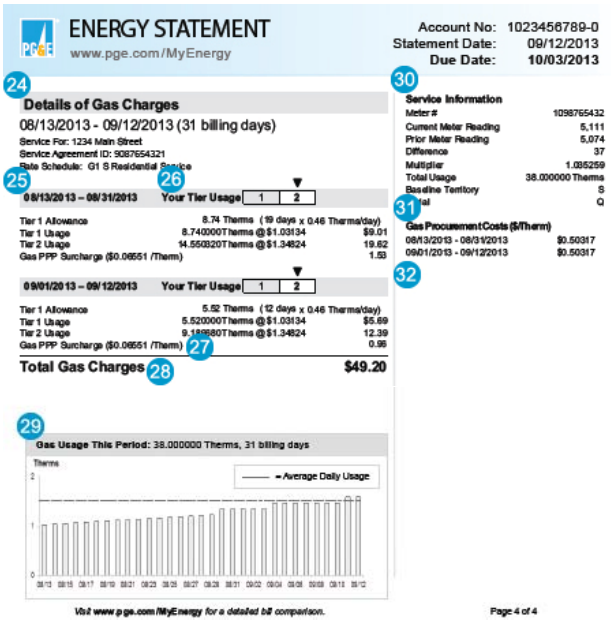
14 **Update My Information (English Only)**
Please allow 1-2 billing cycles for changes to take effect
Account number: 123456789-0
Change my mailing address to: _____
City _____ State ____ ZIP code ____
Primary Phone # _____ Primary Email _____

15 **Ways To Pay**
- Online at www.pge.com/waystopay
- PG&E's Mobile Bill Pay
- **Automatic Payment Service:** Sign up to authorize automatic payments sent from your bank account each month.
- **By mail:** Send your payment along with this payment stub in the envelope provided.
- **By debit card, Visa, Mastercard or Discover:** Call 1-877-704-8470 at any time. (Our independent service provider charges a fee for each transaction.)
- **At a PG&E payment center or local office:** To find a payment center or local office near you, please visit www.pge.com or call 1-800-743-5000. Please bring a copy of your bill with you.

1. **Key Account Data:** 10-digit number unique to each household and due date.
2. **Service Address:** The address where your charges were incurred.
3. **Account Summary:** A snapshot of your bill, includes an overview of charges incurred, payments received, and your total amount due.
4. PG&E Contact Information
5. **Total Amount Due:** Your charges and payment due date, all on one line.
6. **Savings Alert:** Notes about your account and any special programs you participate in that may affect your total charges.
7. **Monthly Billing History:** A chart of your monthly energy charges over the past year.
8. **Important Messages:** Timely information from PG&E.
9. **Remittance Stub:** Return form with your payment to the address indicated.
10. **Important Phone Numbers:** Customer service phone numbers.
11. **Rules and Rates:** Rules for disputing charges.
12. **Important Definitions:** Define key terms.
13. **Your Electric Charges Breakdown:** Line items on your electric bill.
14. **Update My Information:** Fill this out if your information changes.
15. **Ways to Pay:** Options to pay your PG&E bill.



16. **Details of Electric Charges:** Information regarding your rate plan.
17. **Electricity Usage:** Notes your electricity usage during a given timeframe.
18. **Tier Indicator:** Shows the highest tier in which you are being charged.
19. **Taxes and Fees:** State and local governments taxes.
20. **Total electric charges:** Total electricity charges, including taxes and fees.
21. **Daily Usage Chart:** Your electricity usage this month.
22. **Service Information:** Details about the electric meter at your home.
23. **Additional Messages:** Timely information from PG&E.



24. **Details of Gas Charges:** Information regarding your rate plan.
25. **Gas Usage:** Notes your usage by tier during a given timeframe.
26. **Tier Indicator:** Shows the highest tier in which you are being charged.
27. **Taxes and Fees:** State and local governments taxes.
28. **Total Gas Charges:** Total gas charges, including taxes and fees.
29. **Daily Usage Chart:** Your gas usage this month.
30. **Service Information:** Details about the electric meter at your home.
31. **Gas Procurement Cost:** The utility's cost to buy natural gas and transport it to its local pipeline system.
32. **Additional Messages:** Timely information from PG&E.

Accessing Your PG&E Bill

Your energy bill and information about energy use can be found at **pge.com**.

At the website, you can opt for online bill payment. You'll save time and paper, too!

Reducing Energy Use: Plug Loads

Consumer electronic products account for up to 15 percent of electricity consumption in a typical California household. Many small appliances and electronics use energy even when they are turned off—as much as 75 percent may be consumed in standby or off mode! This is known as "vampire" or "phantom" loads, and eliminating them is a great way to save energy.

STEP #1: Use the Kill-A-Watt® Meter

The Kill-A-Watt® meter measures the energy drawn by appliances and electronics in both operating and standby modes. Follow these steps:

1. Plug the meter into an outlet and plug an appliance or electronic device you'd like to measure into the meter. You may need to wait a couple seconds for the energy to register.
2. Push the "down" button until "Watt" appears as the unit.
3. Measure the wattage when the appliance is both on and off
4. Check your PG&E bill to verify your electricity rate.
5. Record your findings on your Data Tracking Sheet.
6. The meter can also help you estimate the cost of electricity used by the appliance or device over time. See the video below for instructions.

Tool: Kill-A-Watt® EZ Meter

Instructional Video: How to Use a Kill-A-Watt® EZ Meter.
Scan the QR code with a smart phone to view the video or visit: http://goo.gl/3Mv1Ku

Average Energy Consumption of Standard Appliances*

Appliance	Watts
Clothes Dryer	1,800-5,000
Clothes Washer	350-500
Clothes Iron	1,000-1,800
Computer	270 awake 60 asleep
Dishwasher	1,200-2,400
Heater	750-1,500
Microwave	750-1,100
Refrigerator	725
Toaster	800-1,400
TV-flatscreen	120
Vacuum Cleaner	1,000-1,440
DVD Player	20-25

*Actual energy usage depends on the age and model of the appliance.

Tips:

- Unplug small appliances (toasters, coffee pots, etc.) when not in use.
- Unplug phone and battery chargers once they are fully charged.
- In your entertainment and computer areas, plug equipment into a Smart Strip, which will shut off equipment when in standby mode.

  NOTE: Unplugging your cable box may reset the system; be sure to consult the operation manual.
- Always look for the EnergyStar® logo when buying new appliances.

Smart Strip

Major appliances may account for a quarter of your household energy costs, and your refrigerator is likely to be the single biggest plug load in your home. Using the Kill-A-Watt® meter, you can compare the energy use of your appliances to the average use as outlined in the table on page 6. Then follow the tips for your appliances outlined below.

STEP #2: Measure the Refrigerator Temperature

Use the Refrigerator Thermometer to help set optimum temperatures for your refrigerator and freezer:

1. Place thermometer in refrigerator between several food items. After 20 minutes, record the temperature on your Data Tracking Sheet.
2. Look and test for cracks in the door seal: Close the door on a piece of paper and tug. If the paper moves easily, then you need to replace the seal.
3. Repeat these actions with the freezer.
4. Adjust temperatures if they are outside the target range: 36-40°F for refrigerator, 0-5°F for freezer.

Tool: Refrigerator Thermometer

DID YOU KNOW?
You Can Save With EnergyStar® Appliances!

EnergyStar® appliances typically use up to 50 percent less energy and water than standard models. Look for the EnergyGuide label; it provides an estimated yearly operating cost and the range of operating costs for similar models.

Rebates! Rebates!

Check with PG&E for rebates on your EnergyStar® appliance purchase. PG&E may also pay to pick up your old refrigerator or A/C unit. Call 1-800-299-7573 or visit http://goo.gl/jTb2Vq for eligibility and pickup.

Tips:

REFRIGERATOR

- Regularly clean the coils on your refrigerator.
- Keep contents organized so you can quickly get what you need; minimizing the amount of time the doors are open will save energy.
- Turn off the condenser feature in the refrigerator.
- If you have a second refrigerator, consider donating it or having it properly disposed of by your waste hauler, and you may be eligible for a PG&E rebate!

WASHER & DRYER

- Wash full loads and use short wash cycles for mildly dirty laundry.
- Use cold water whenever possible.
- Use the washer's high spin cycle to reduce drying time, and try a clothesline instead of the dryer, which is a big energy user.
- Clean the lint trap after every use to ensure safe, efficient drying.

HEATING & COOLING SYSTEMS

- Clean and replace filters regularly.
- Set your winter heating temperature at 68°F; set your summer cooling temperature at 78°F.
- Use window coverings to prevent heat gains.
- Circulate air with ceiling or portable fans.
- Replace older A/C units (more than 10 to 15 years) with EnergyStar® appliances—this could reduce your costs by 20 to 40 percent!

Reducing Energy Use: Lighting

Lighting represents as much as 22 percent of your home's electrical use. You can reduce your energy bill significantly by switching to energy-efficient lighting. The compact fluorescent lightbulbs (CFLs) provided in this kit are roughly 75 percent more efficient than incandescent bulbs and last up to 10 times longer.

STEP #3: Switch Lightbulbs to CFLs

CFLs screw into place the same as incandescent bulbs. Follow these steps as you set out to switch over to CFLs:

1. First replace the incandescent bulbs in fixtures that have the highest use; this will result in the greatest savings for you.
2. Read the packaging to see where the bulb should be used; not all Energy Star qualified CFLs are designed to work in every socket.
3. Match the equivalent wattage of the old bulb (a 60W incandescent should be replaced with a 13W CFL).
4. Calculate your savings using the Data Tracking Sheet to see how much each of your CFLs will save you during the next year.

Equipment: CFL Light Bulb

Tips:

- Dimmable fixtures require a dimmable CFL; these are available at hardware stores. A standard CFL will quickly burn out if used in a dimmable fixture.
- Most photocells, motion sensors, and electronic timers are not designed to work with CFLs. Check the packaging for compatibility.
- Don't frequently turn a CFL on and off (more than every 15 minutes); this may shorten its lifespan.
- Make sure to dust your bulbs at least every six months; a dirty bulb is an inefficient bulb.

Next Steps

- Replace the rest of the incandescent bulbs in your home with CFLs. You can find CFLs in many sizes and shapes at any major hardware store.
- Replace your outside lights as well. CFL flood lights are available.

Go Further with LEDs

Take the next step and look into installing LED light bulbs. LEDs, while more expensive up front, offer similar light quality, last up to 25 times longer than traditional incandescent light bulbs, and use even less energy than CFLs.

How to Handle a Broken Bulb

Incandescent

1. Turn off and unplug the fixture.
2. Put on protective work gloves.
3. Grip metal lip of the bulb with pliers or wrench.
4. Turning counterclockwise, gently unscrew the bulb base.
5. Place bulb and broken glass in a paper bag and place in the trash.

Fun Fact:

Broken incandescent bulbs can be removed using a potato. Simply cut the potato in half, push the flesh into the broken section of the bulb, and twist counterclockwise.

CFL

1. Turn off and unplug the fixture.
2. Open a window or door to the outside environment and leave the room, letting it air out for 10 minutes to let the hazardous chemicals from the bulb dissipate.
3. While continuing to air out room, carefully scoop up glass pieces and powder using stiff paper or cardboard; place into a thick plastic bag.
4. Use sticky tape to pick up remaining fragments (DO NOT VACUUM).
5. Wipe area clean with a damp paper towel; dispose of towel in the trash.
6. Place each CFL in a separate, clear, and sealed plastic bag; bring to a hardware or lighting store that recycles CFLs (typically this service is provided free of charge).
7. For CFL recycling locations, visit **earth911.com**

VIDEO: Removing Broken Incandescent Bulbs

http://goo.gl/eOPnh

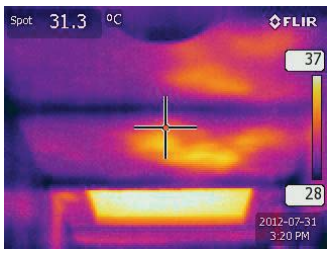
TIPS: Cleaning Up Broken CFLs & Disposing of Spent CFLs

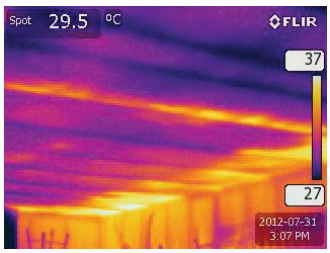
http://goo.gl/tnFx9

Sealing cracks, gaps, and leaks and improving the insulation in your home can save up to 20 percent of your heating and cooling costs. The Infrared Laser Thermometer will help you detect where you may be losing or gaining heat through windows, lighting fixtures, outlets, vents, door jams, and heating and cooling systems.

STEP #4: Use the Infrared Laser Thermometer

The Infrared Laser Thermometer detects heat gain and loss. Turn on and point the thermometer at potential trouble spots in your home. Note any temperature fluctuations that may be caused by air leaks.





These images (taken from an infrared camera) show examples of a home with a poor thermal envelope. The spots in yellow are places where little or no insulation are present. On a warm day, heat is being conducted through the ceiling and walls, making these areas hot.

Tool: Infrared Laser Thermometer

Instructional Video: How to Use an Infrared Laser Thermometer.
Scan the QR code with a smart phone to view the video or visit:
http://goo.gl/bDJj2

Tips:

Heating and cooling can account for up to 50 percent of home energy use; a properly insulated home will reduce this cost and keep your home more comfortable—cooler in the summer and warmer in the winter. Take these steps to reduce leakage in your home envelope:

- Caulk windows (video below).
- Schedule a professional audit or contact a local contractor to address insulation needs around your light fixtures, vents, or other spots. Energy Upgrade California is an excellent resource for this; visit energyupgradeca.org/home_upgrade for information.
- Insulate ceilings, walls, attics, floors, crawl spaces, and basements to recommended standards for optimum savings.
- Common types of insulation are fiberglass, cellulose, rigid foam board, and spray foam.

energy upgrade™ CALIFORNIA

Instructional Video: How to Caulk Windows.
Scan the QR code with a smart phone to view the video or visit: http://goo.gl/pdRsj

You pay for heating your home, so don't just let that heat leak out through gaps in your doors, windows, and outlets. Follow these steps to stop those leaks!

STEP #5: Install Weatherstripping

Use weatherstripping to seal gaps in your doors and window jams.

1. Check for drafts around external doors and window jams. Use the Infrared Laser Thermometer, or if you can see light or slide a piece of paper through an area, then it needs weatherstripping. The entire door or window usually doesn't need weatherstripping—focus on the sections where you feel air or can see light.
2. Clean the application area to ensure a good installation.
3. Cut a length of weatherstripping to match the length of door or window where the strip will be applied. Peel back adhesive strip and apply.
4. Record your action on your Data Tracking Sheet.
5. Please return whatever you do not use in the Toolkit.

Equipment: Weatherstripping

Instructional Video: How to Apply Weatherstripping. Scan the QR code with a smart phone to view the video or visit: **http://goo.gl/XX5fH**

Tip: A door without weatherstripping may not look like a problem, but the amount of exposed area from different locations can add up to a big hole! Consider installing a door sweep to help keep out drafts; you can pick one up at your local hardware store.

STEP #6: Install Outlet Gaskets

Outlet gaskets help prevent air leaks that can result from poor wall insulation.

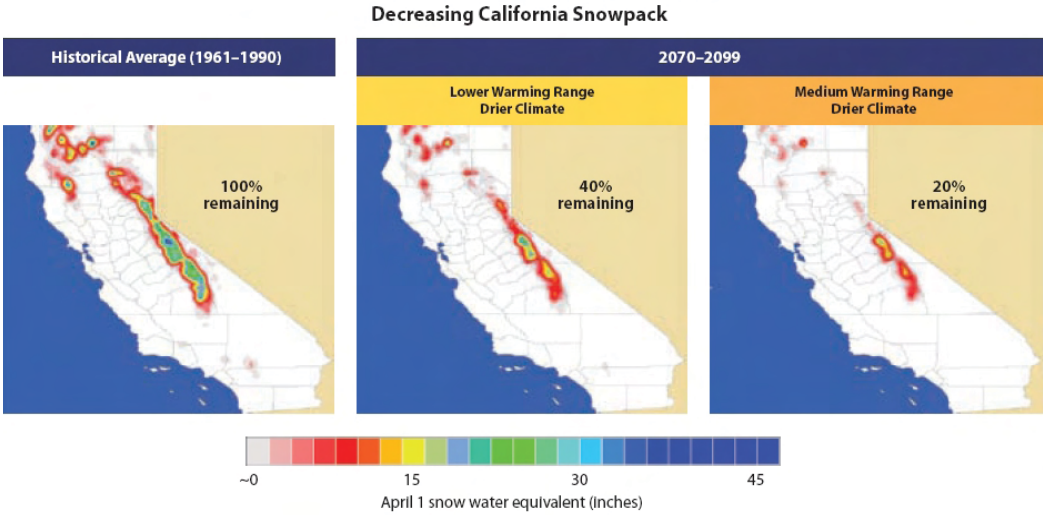
1. Identify exterior walls with the most exposure to draft.
2. Choose an outlet or switch plate to upgrade.
3. Carefully loosen the face plate screw with a screw driver (not provided) and remove faceplate.
4. Place gasket over internal area. If necessary, trim the gasket to fit around the outlet.
5. Replace faceplate cover and tighten screw.
6. Repeat for other outlets or switches throughout your house.

Equipment: Outlet Gaskets

Instructional Video: How to Install Outlet Gaskets. Scan the QR code with a smart phone to view the video or visit: **http://goo.gl/HQ4YW**

Introduction to Water Use

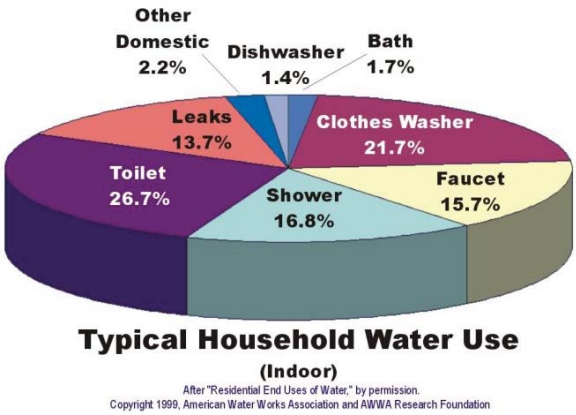
As a necessity for life itself, water is one of our most precious natural resources. In the Bay Area, we receive most of our water from the snowpacks of the Sierra Nevada. But with a changing climate and growing populations, our water resources have been shrinking year by year. While state and local leaders continue to work on long-term solutions to our water challenges, saving water on a daily basis helps stretch supplies and keeps water in reservoirs for the inevitable dry years to come.



Source: Dan Cayan et al. (2006), in the California Climate Adaptation Strategy (2009), p. 80.

How We Use Water?

Indoor Water Use in a Typical Single Family Home



When you save water, you also save energy. That's because a good chunk of California's electricity (20 percent) and natural gas (30 percent) consumption is used simply to pump, transport, and treat water around the state. And up to 49 percent of a typical home's gas usage goes to heating water.

Reducing water use can therefore help lower your energy bills.

STEP #7: Measure the Flow Rate of Faucets

Using the water flow rate bag, you will measure the rate that water flows from your faucets and showerheads.

1. Determine if your existing aerator is already low-flow; this should be printed on the side of the aerator. Low-flow aerators are marked as follows:
   - bathroom sink: 0.5 gpm
   - kitchen sink: 1.5 gpm
   - showerhead: 2.0 gpm.
   If the existing aerator is not marked as above, continue with the following steps.
2. Turn on faucet and fill water flow rate bag for 5 seconds.
3. Record water flow on your Data Tracking Sheet.
4. If your water is flowing at a rate greater than noted in the 1st step, then install one of the Toolkit aerators.
5. Test the flow rate again after the installation and note your findings.

Tool: Water Flow Rate Bag

Think before you dump leftover water; make the most of it by giving it to your indoor or outdoor plants.

Fun Fact: On average, U.S. residents use 69 gallons of water per day per person for indoor use. That's 25,000 gallons a year per person—enough to fill an average home swimming pool!

STEP #8: Replace the Aerators

Check the imprint on the aerator for flow rate, or use the flow rate bag to measure. If the faucet flows at more than 0.5 gpm (bathroom) and 1.5 (kitchen), then you should replace the current aerators with the aerators provided.

Note: Some kitchen faucets are custom sizes and cannot be replaced with the Toolkit's aerator. You can still measure the flow rate and seek alternatives at a local hardware store or online.

1. Close or plug your drain.
2. Unscrew old aerator counterclockwise; if needed, use the pliers to loosen the aerator. Wrap the teeth of the pliers with painter's tape or a towel to avoid scratches to the existing equipment.
3. Clean and dry water pipe threads (grooves at end of faucet).
4. Wrap provided pipe thread seal tape around pipe thread.
5. Screw on new aerator clockwise by hand.
6. Turn on faucet to test for leaks, and tighten with pliers if necessary.

Equipment: Faucet Aerator

Tool: Pipe Thread Seal Tape

Tool: Pliers

Continued on P.14

STEP #8 (Part 2): Replace the Showerhead

Check the imprint on the showerhead for flow rate, or use the flow rate bag to measure. If the showerhead flows at more than 1.5 gpm, then you should replace with the showerhead provided.

Instructions: Identical to Step #8.

Equipment: Low-flow Showerhead

Faucet Aerator

http://goo.gl/ZHDeo

Showerhead

http://goo.gl/qkcxB

Instructional Video: Use your smart phone to follow these QR codes for videos on how to change your faucet aerator and showerhead.

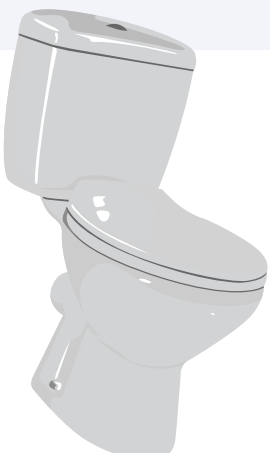
STEP #9: Use the Toilet Leak Detection Tablets

Leaking toilets can contribute to high water bills if undetected. The Detect-A-Leak Toilet Tablets are a simple and inexpensive way to test for leaks on a regular basis.

1. Carefully remove tank lid.
2. Drop 1-2 tablets into exposed tank.
3. Wait 20-30 minutes. Do not flush the toilet during this time.
4. If blue color appears in the toilet bowl you have a toilet leak. Typically, a leaky flapper is the cause for toilet leaks and needs to be replaced.

Equipment: Toilet Leak Detecting Tablets

Water Savings Tips



- Avoid running water while brushing your teeth and shaving.
- A constantly running toilet can waste up to 200 gallons of water per day. That can cost you $250 over the course of a year! Contact the Santa Clara Valley Water District for a free home Water-Wise House Call, covering both in-home and landscaping use. Call 1-800-548-1882 to schedule and appointment.
- Upgrade your old, inefficient toilet (3.5 gallons per flush or more) to a high-efficiency or dual flush toilet.
- Make use of a shower timer, which helps you use less water and save energy at the same time. Try to set is for five minutes or less.

Heating water typically accounts for up to 49 percent of the natural gas use in your home.

STEP #10: Adjust the Water Heater

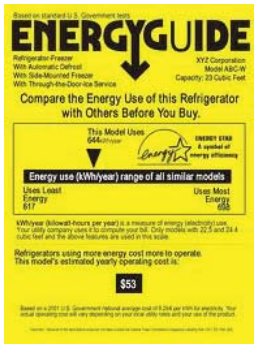
1. Locate your water heater.
2. Locate adjustment dial and mark current setting with a pencil or masking tape.
3. Locate the faucet closest to the water heater.
4. Run water until hot and capture a cupful in a mug.
5. Insert thermometer and wait for it to reach its highest point.
6. Record highest point temperature on your Data Tracking Sheet.
7. Adjust setting so that your hot water runs at 120°F. If your water heater does not have specific temperature settings, this step might take a few tries.

Tool: Thermometer

Instructional Video: How to Adjust Your Water Heater Temperature. Scan the QR code with a smart phone to view the video, or visit this link: **http://goo.gl/DJDKk**

Tips:

- Insulate the pipes leading from the water heater. This helps conserve energy.
- Set your water heater to "Vacation Mode" when you are away for long periods of time to conserve energy.
- Check the EnergyGuide sticker when purchasing a new hot water heater. It provides the estimated cost to run the equipment.
- Do you have a recirculation pump? These pumps can save water, but only if the timer is set correctly.



Rebates! Rebates!
Rebates are available for water-efficient fixtures through the Santa Clara Valley Water District. Visit **valleywater.org** or call **1-877-874-8479**. Additional information may be found at the website of the rebate Bay Area Water Supply and Conservation Agency; visit **bawsca.org**.

Water Savings Tips

- Regularly check for and fix leaks in your irrigation system; leaks can waste thousands of gallons of water annually.
- Consider switching to a drip irrigation system to save water.
- Water between sunset and sunrise when temperatures and wind are the lowest; this reduces evapotranspiration and allows water to soak deeper into your landscaping.
- Pool filters are energy intensive. Consider reducing your filter times in the fall and winter and set timers to avoid peak utility rates. Using a pool cover will save even more energy and water.
- To view water-saving tips and rebates, visit **save20gallons.org**.
- The Santa Clara Valley Water District offers free Water-Wise House Calls for both the home and landscape. Call **1-800-548-1882** to schedule an appointment. If you are a San Jose Water Company customer, please call **(408) 279-7900** to schedule a free Water Watcher Audit.
- The Santa Clara Valley Water District also offers rebates for replacing turf areas with qualifying plants that require less water. Visit **http://goo.gl/Zejtce** for more information.
- Change your irrigation schedule with the season and with local weather conditions. Better yet, consider upgrading to a weather based irrigation controller.

Fun Fact:

Which is more water efficient—a commercial car wash or home car wash?
Compared to a home car wash, a commercial car wash saves water. A home car wash uses 80-140 gallons of water whereas most commercial car washes use 30-45 gallons. Washing your car on your driveway or in the street sends dirty water, soap, heavy metals, oil, and grease into the gutter which flows to local creeks and the Bay. If you wash your car at home, park it over the lawn or a gravel area.

Santa Clara Valley Water District

San Jose Water Company

Cooking & Eating

Kitchen activities often require large amounts of energy. Use these tips to reduce energy use:

Efficient Cooking Habits

- Thaw frozen food to reduce cook times.
- Double your recipe, freezing half for later.
- Heat only as much water as needed.
- Cover pans to reduce cook time and energy.
- Use fewer pots to reduce dish washing needs.
- Use your toaster oven or microwave for small items; unplug appliances when not in use.
- Avoid opening the oven door.

Efficient Dishwasher Habits

- Scrape, don't rinse, dishes.
- Use the short cycle.
- Avoid the "Rinse Hold" setting.
- Air dry dishes by turning off the heat setting and opening the door.
- Upgrade to an EnergyStar® model, saving up to $40 per year. PG&E offers rebates for upgrading to a more efficient model: http://goo.gl/slvjF

Eating Habits that Help the Planet and Your Health

- **Rethink your drink**. Avoid sweetened beverages—one 20-ounce soda contains 17 teaspoons of sugar. To learn more, visit **sccgov.org** and click the Health & Safety tab.
- **Shop your refrigerator first**. In the U.S., 40 percent of our food goes uneaten. Eat what you have before shopping for more by taking EPA's Food Recovery Challenge. Visit **http://goo.gl/XWk0Zf**
- **Eat locally**. Reduce the miles your food travels and support local farmers.
- **Opt for organic**. Avoiding pesticides is better for the environment and your health.
- **Try the veggie option**. Meat production uses an enormous amount of water and energy. On average, it takes 28 calories of fossil fuel energy to produce one calorie of meat, versus 3.3 calories of fossil fuel energy to produce one calorie of protein from grain. Similarly, it takes 4,200 gallons of water daily to support a meat-based diet, versus 300 gallons to support a vegan diet. Going meatless once a week will make a difference.
- **Prepare balanced meals**. The obesity rate in Santa Clara County is 21 percent. Provide meals loaded with fruits and veggies to promote healthy eating habits for you and your kids.

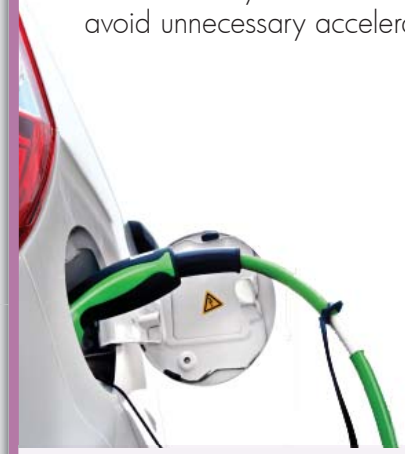
Transportation

Get better gas mileage:

- Regularly maintain your vehicle—a happy car is a more efficient car.
- Under-inflated tires will decrease your miles per gallon, so check the tire pressure when filling your tank. Proper tire pressure levels can be found on the inside of the driver's side door.
- Drive smoothly and at the speed limit; avoid unnecessary acceleration.

Or, ditch the car!

- Consider using alternative transportation at least a couple times a week.
- Walk or bike whenever possible, visit VTA website for bikeways maps
- Try public transportation. Visit **vta.org** for local routes and schedules.
- Safe Routes to School—"cool" your kids commute by walking, biking, scootering, or taking the school bus to school. Visit **http://goo.gl/GggMa** to learn the ways to create a fun, healthy, and safer way to get to school.



WALK & ROLL
safe routes to school in santa clara county

Recycling & Composting

Composting not only provides healthier soil and plants but can save you money by not having to buy soil conditioners, mulch, and fertilizer. Home composting also reduces yard trimming collection and processing; keeps kitchen waste out of the landfill; and turns organic material into a valuable product for gardens and house plants.

Visit **http://goo.gl/OIw2n1** for the latest Composting Workshops in Santa Clara County.

For information about recycling programs for each city in Santa Clara County, visit **http://goo.gl/kg22eV**. This site includes information about landfills, transfer stations, curbside recycling programs, and key contacts for each city.

The Recycling & Waste Reduction Commission at the County of Santa Clara has a Recycle search to find places to recycle and reuse stuff, visit **http://goo.gl/6rKMDq**

Return the DIY Toolkit to the Library

Now that you've used the Toolkit and accomplished the steps to a more energy-efficient home, you have just a few things left to do:

1. The **full-page** Data Tracking Sheet is for you to keep but the **half-sheet** Data Tracking Info Card should be returned to the library—make sure to fill it out, this helps us track how the Toolkit is being used.

2. Make sure all tools (see list on page 2) are in your kit before returning it to the library. Please return the Toolkit as soon as you can so other library patrons can make use of it.

3. Got the energy efficiency bug? Think you missed a few things, or need further assistance? The SVEW team is here to help—contact us at **svenergywatch.org** or call **(408) 535-8550.**

4. Consider amplifying your savings through the whole home performance approach of Energy Upgrade California—visit **energyupgradeca.org** to learn more and get started.

5. Thinking about going solar? Energy efficiency steps should be done first, enabling you to drive down your total energy demand so that you don't buy a bigger solar system than you need. Visit **gosolarcalifornia.org** to learn more about solar options for your home.

6. Spread the word about SVEW and share your experience using the DIY Toolkit.

7. Enjoy the savings from all of your DIY actions!

Congratulations on taking these steps to save vital resources!

CONTACT

Silicon Valley Energy Watch
City of San José - Environmental Service Department
200 East Santa Clara, San José, CA 95113
Phone: (408) 535-8550
energy@sanjoseca.gov

Participating Libraries

San José Public Library

santa clara county library district

City of Sunnyvale California

SILICON VALLEY energy watch

Pacific Gas and Electric Company®

City of San José Capital of Silicon Valley
Environmental Services

As a part of the State's energy efficiency portfolio funded by California utility customers, Silicon Valley Energy Watch (SVEW) exists to help residents, businesses, and public agencies throughout Santa Clara County save energy easily and cheaply. SVEW is implemented by the City of San José Environmental Services Department in partnership with Ecology Action. This program is funded by California utility customers and administered by PG&E under the auspices of the California Public Utilities Commission. "PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation.

Printed on recycled paper.

Silicon Valley Energy Watch DIY Home Energy Saving Toolkit

Data Tracking Worksheet Page 1

Use this sheet to keep track of the retrofits you've installed and calculate the assumed annual savings from your actions. **This form is yours to keep**. Please complete the card inside the toolkit using the savings amounts you calculate on this sheet and return it to the library when you are done.

Date:_____

Water

Showerhead	Flow Rate (gpm) Before	After	Saved	Daily Use (mins)	Conversion	Savings (gal/year)
Bathroom	_____	2.0	= _____	x _____	x 365	= _____

Water Savings → _____ /748 = _____ Ccf x $ _____ /Ccf* = $ _____

Gas Savings → _____ x 0.005 = _____ therms x $1.4 /therm = $ _____

Annual Cost Savings

Faucet Aerator	Flow Rate (gpm) Before	After	Saved	Daily Use (mins)	Conversion	Savings (gal/year)
Bathroom	_____	0.5	= _____	x _____	x 365	= [1] _____
Bathroom	_____	0.5	= _____	x _____	x 365	= [2] _____
Kitchen	_____	1.5	= _____	x _____	x 365	= [3] _____
					TOTAL [1+2+3]	_____

Water Savings → _____ /748 = _____ Ccf x $ _____ /Ccf* = $ _____

Annual Cost Savings

Lighting

Location	Usage (Watt) Old Bulb	New Bulb	Saved	Daily Use (hours)	Conversion	Savings (kWh/y)
_____	_____	- _____	= _____	x _____	x 365	= [1] _____
_____	_____	- _____	= _____	x _____	x 365	= [2] _____
_____	_____	- _____	= _____	x _____	x 365	= [3] _____
_____	_____	- _____	= _____	x _____	x 365	= [4] _____
					TOTAL [1+2+3+4]	_____

Electricity Savings → _____ kWh x 0.14** = $ _____

Annual Cost Savings

*The average rate for water is currently $2.74/Ccf, not including meter service charges, taxes, or fees. This rate is calculated using an estimated average of residential water rates in the San José area. Check your water bill for a more accurate figure.

**Usage rate is based on the PG&E baseline rate of $0.14/kWh. Your rates might be higher.

–Over–

Silicon Valley Energy Watch DIY Home Energy Saving Toolkit

Data Tracking Worksheet Page 2

Plug Loads

Electronic Devices	Device State	Usage (Watts)		Daily Use (hours)	Conversion	Electricity Usage (kWh/y)	Electric Rate	Electricity Costs
Television	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Cable Box	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
DVD/Blu Ray	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Stereo	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Computer	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Printer/Fax	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Coffee Maker	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Microwave	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Other	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____
Other	Standby	_____	x	_____	x 365 =	_____	x 0.14* =	_____
	On	_____	x	_____	x 365 =	_____	x 0.14* =	_____

*Usage rate is based on the PG&E baseline rate of $0.14/kWh. Your rates might be higher.

Add all your calculation from the "Electricity Usage" column: Total Usage = _____ kWh/y

Add all your calculation from the "Electricity Costs" column: Total Costs = $ _____

I pledge to commit at least one of the following action:

- ☐ Unplug inactive appliances
- ☐ Turn off lights when leaving a room
- ☐ Wash clothes in cold water
- ☐ Set hot water heater no higher than 120F
- ☐ Use sunlight for light
- ☐ Do full loads in dishwasters and clothers washers

Silicon Valley Energy Watch DIY Home Energy Saving Toolkit

Data Tracking Info Card

Please fill in the information below by using your worksheet and return it along with your toolkit to the library.

Checkout Date _____

Library _____

# of people living in your household _____

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

SILICON VALLEY energy watch

PG&E Pacific Gas and Electric Company®

Showerhead

Water Savings $ _____

Gas Savings $ _____

Faucet Aerator

Water Savings $ _____

Lighting

Electricity Savings $ _____

Plug Loads

Electricity Cost $ _____

This information enable us to assess the effectiveness of this program for residents individually and of the program overall. We THANK YOU for ensuring the longevity of our program by completing the form.