



**SAN MATEO COUNTY  
ENERGY WATCH**

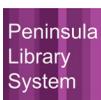
# Check-It-Out! Home Energy and Water Saving Toolkit User Guide

This toolkit is designed for San Mateo County residents to help them save money on their utility bills while conserving vital resources. To view this guide online, visit: [www.smcenergywatch.org](http://www.smcenergywatch.org)



As a part of the State's energy efficiency portfolio funded by California utility customers, San Mateo County Energy Watch (SMCEW) exists to help residents, businesses, and public agencies throughout San Mateo County save energy easily and cheaply. 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.

## Your Community Resource Conservation Partners:



Thank you for borrowing the Check-It-Out! Home Energy and Water Savings Toolkit. This handbook will help guide you through using all the tools and items contained in this kit as well as provide information on other ways you can save energy, water, and track your use over time.



Let's get started!

If you are interested in tracking your energy and water savings, there is a data tracking sheet available at [www.smcenergywatch.com](http://www.smcenergywatch.com).

NOTE: To use the Quick Response (QR) codes in this handbook you need a smartphone app that has a QR code scanner. If you are unable to scan the QR code, you can type the associated URL into your web browser.

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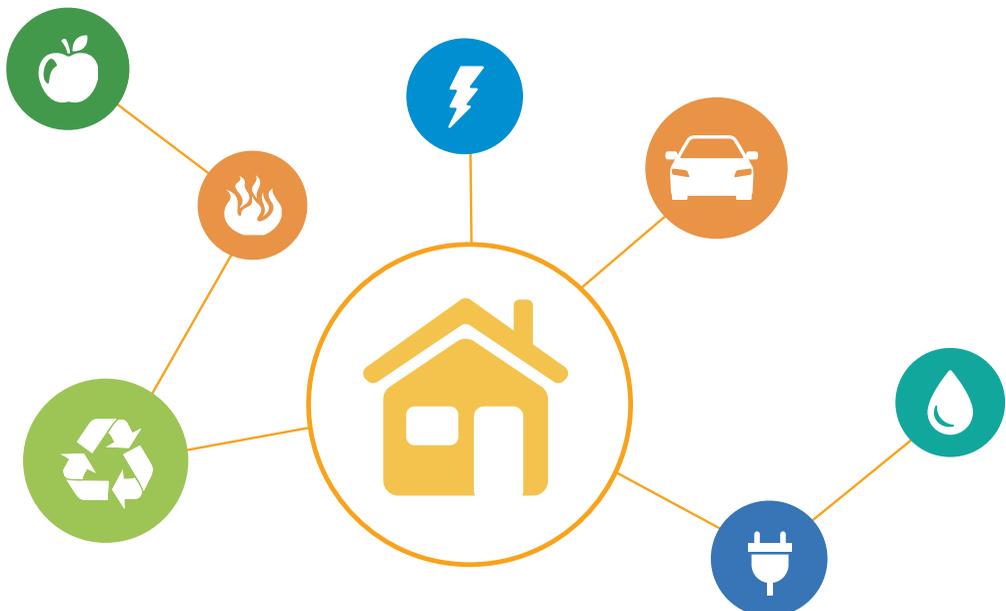
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## ADDITIONAL RESOURCES AND INFORMATION:



### REBATES!

Water conservation rebates may be found at the website of the Bay Area Water Supply and Conservation Agency [bawasca.org](http://bawasca.org).

Rebates for residential energy efficiency updates by the Bay Area Regional Energy Network are found at [bayrenresidential.org](http://bayrenresidential.org).

For rebates on EnergyStar appliances from PG&E you can check for eligibility and pickup at [pge.com/myhome/erebates/](http://pge.com/myhome/erebates/) or Call 1-800-933-9355.



### ENERGY UTILITY:

Where your energy comes from is just as important as how you use it. Peninsula Clean Energy purchases electricity for almost all residents and businesses in San Mateo County, in partnership with PG&E which continues to deliver it to customers and handle billing. Peninsula Clean Energy was started by the County of San Mateo and all of its cities to help meet local climate action goals by providing cleaner energy at lower rates. Learn more at [peninsulacleanenergy.com](http://peninsulacleanenergy.com). Choices include Peninsula Clean Energy's EcoPlus or Eco100 options, or PG&E's default or Solar Choice options.



### WASTE: TRASH, RECYCLING, AND COMPOSTING

Visit [smcsustainability.org](http://smcsustainability.org) for the latest composting workshops in San Mateo County.

For information about recycling programs for each city in San Mateo County, visit [recyclestuff.org](http://recyclestuff.org). This site includes information about landfills, transfer stations, curbside recycling programs, and key contacts for each city.

The San Mateo County Office of Sustainability has a Recycle search to find places to recycle, reuse stuff and to dispose of hazardous waste: [goo.gl/pNL3KM](http://goo.gl/pNL3KM).



### BUSINESS OWNERS:

Find information on how to "green" your business, including rebates for energy efficiency retrofits: [greenbusinessca.org](http://greenbusinessca.org).

Get certified as a California Green Business or find a Green Business near you to support! Visit: <https://greenbusinessca.org/find-green-business/>.



If you want additional information about energy programs in San Mateo County, visit [smcenergywatch.org](http://smcenergywatch.org).

# DIY TOOLKIT CONTENTS



## EQUIPMENT - FOR INSTALLATION



**LED (Light Emitting Diode) Bulbs** – Replace incandescent or compact fluorescent bulbs in high-use fixtures.



**Weatherstripping** – Seal air gaps in windows and doors.



**Outlet Gaskets** – Seal the void around your outlets and prevent heat loss.



**Low-Flow Showerhead** – Replace your current showerhead.



**(3) Low-Flow Faucet Aerators** – Apply the 0.5 gpm aerators to your bathroom sinks and the 1.5 gpm aerator to your kitchen sink. These aerators are a standard size (15/16”) and will fit most faucets.



**Water Leak Detection Dye Tablets (not for consumption)** – Use to identify leaks in your toilet tanks.

Please only keep what you have installed.



## TOOLS - TO BE RETURNED TO THE LIBRARY



**Kill-A-Watt® Meter** – Measure the energy use of appliances and equipment to better understand your home’s “plug load” as a share of overall energy use.



**Infrared Laser Thermometer** – Check for heat loss in trouble areas such as windows, vents, and door jamb.



**Refrigerator Thermometer** – Monitor the temperature in your refrigerator.



**Painter's Tape** – Wrap around the pliers to help prevent scratching aerators or showerhead during installation.



**Thermometer** – Check the temperature of your hot water supply.



**Drip Gauge** – Measure how much water a leaky faucet is wasting.



**Water Flow Rate Bag** – Measure the true rate of flow of your faucets and showers.



**Pliers** – Use to replace old faucet aerators and showerheads with new ones.



**Pipe Thread Seal Tape (plumber's tape)** – Help prevent leaks in your faucets and showerheads.



**Practical Plumbing Handbook** – Learn how to save water at home.

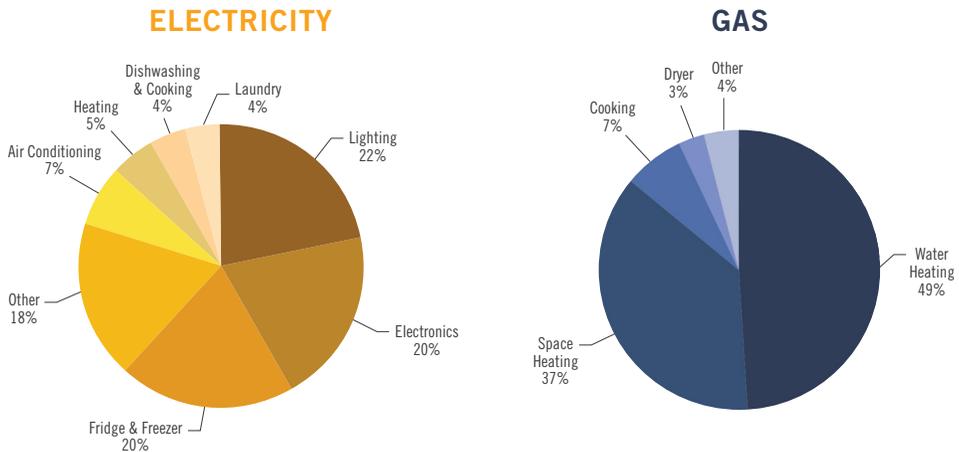
This handbook will help you understand how to use these tools.

# 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.



## HOW MUCH ENERGY WILL THIS TOOLKIT HELP ME SAVE?

We all use energy in our homes differently, so predicting the energy savings you can achieve 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.\*Savings depend on the light use, electricity cost, type of bulbs, and fixtures.

\*Based on national averages



## ENERGY LITERACY: UNDERSTANDING UNITS THAT MEASURE ENERGY

**Lumens** – This is a measure of how much light is emitted from a bulb. The higher the lumens the more light the bulb emits.

**Watt (W)** – Power is a measure of the rate at which energy flows when the fixture or appliance is on, and in electrical systems it is measured in watts (W). Watts are the equivalent of the miles-per-hour measurement of the electrical world—they tell you how fast the electrons are speeding down the highway. The higher the rating (e.g., 40, 60, 100W), the brighter the light.

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

**Kilowatt hour (kWh)** – This is a measurement of electricity that is consumed. A kWh is a measure of energy, and energy is the capacity to do work such as creating heat, light or motion. A light bulb uses energy to emit light. A 60-watt light bulb when turned on for an hour consumes 60 watt-hours or 0.06 kWh of energy. In 2011, the typical PG&E residential customer used 500 kWh/month/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 ENERGY BILL



## PG&E BILL FEATURES

PG&E sends you one bill for gas and electricity. In San Mateo County, PG&E works with Peninsula Clean Energy to provide you electricity. For more information visit [peninsulacleanenergy.com/residents](http://peninsulacleanenergy.com/residents), or call 1-866-966-0110.



To see how your energy use compares to your neighbors' check your Home Energy Report on [pge.com](http://pge.com).

### 1 Account Summary

A snapshot of your bill, including an overview of charges incurred, payments received, and your total amount due. This includes:

Peninsula Clean Energy Electric Generation Charges for purchasing the electricity you use.

Current PG&E Electric Delivery Charges for maintaining PG&E's infrastructure and delivering electricity to your home.

### 2 Monthly Billing History

A chart of your monthly energy charges over the past year.

### 3 Electricity Usage

Notes your electricity usage during a given timeframe.

Account No: 0123456789-1  
Statement Date: 06/07/2018  
Due Date: 06/28/2018

**Details of Peninsula Clean Energy Electric Generation Charges**

05/03/2018 - 06/01/2018 (30 billing days)

Service For: 1234 SAMPLE ROAD  
Service Agreement ID: 0123456789 ESP Customer Number:

05/03/2018 - 06/01/2018

Rate Schedule: E-1			
GENERATION - TOTAL	335.000000 kWh @ \$0.06840	\$22.91	
Local Utility Users Tax		1.15	
Electric Commission Surcharge		0.10	
Peninsula Clean Energy is San Mateo County's official electricity provider. You're getting cleaner energy at low rates!			
<b>Total Peninsula Clean Energy Electric Generation Charges</b>			<b>\$24.16</b>

**Service Information**  
Total Usage: 335.000000 kWh

For questions regarding charges on this page, please contact:  
PENINSULA CLEAN ENERGY  
2075 WOODSIDE  
REDWOOD CITY, CA 94061  
1-866-966-0110  
[www.peninsulacleanenergy.com](http://www.peninsulacleanenergy.com)

**Additional Message**  
Peninsula Clean Energy is San Mateo County's official electricity provider. We are a not-for-profit, public utility providing 50-100% renewable energy. We are committed to providing clean, reliable, and affordable electricity to our customers. PG&E continues to deliver services. Call PG&E for more information. We invite you to go to [info@peninsulacleanenergy.com](http://info@peninsulacleanenergy.com) or call 1-866-966-0110 for help.

**Local Office Address**  
275 INDUSTRIAL RD  
SAN CARLOS, CA 94070

**Questions about your bill?**  
Monday-Friday 7 a.m.-9 p.m.  
Saturday 8 a.m.-6 p.m.  
Phone: 1-866-743-0335  
[www.pge.com/MyEnergy](http://www.pge.com/MyEnergy)

**Important Messages**  
Your current gas rate Your gas usage is currently billed on a rate for a single-family home or common-use area of a multi-family complex. If this is incorrect, please call us at 1-800-743-5000.

Account No: 0123456789-1  
Statement Date: 06/07/2018  
Due Date: 06/28/2018

**Your Account Summary**

Amount Due on Previous Statement	\$77.65
Payment(s) Received Since Last Statement	\$77.65
Previous Unpaid Balance	0.00
Current PG&E Electric Delivery Charges	\$57.45
Peninsula Clean Energy Electric Generation Charges	24.16
Current Gas Charges	3.11
<b>Total Amount Due by 06/28/2018</b>	<b>\$84.72</b>

**Monthly Billing History**

**Electric kWh / Day**

1 Year Ago Period	Last	Current
10.35	10.76	11.07

**Gas Therms / Day**

1 Year Ago Period	Last	Current
N/A	N/A	N/A

Visit [www.pge.com/MyEnergy](http://www.pge.com/MyEnergy) for a detailed bill comparison.

99905642732909300000064720000016237

Account Number: 0123456789-1    Due Date: 06/28/2018    Total Amount Due: \$162.37

Amount Enclosed: \$

WILLIAM SAMPLE  
1234 SAMPLE ROAD  
DALY CITY, CA 94015-1847

PG&E  
BOX 997300  
SACRAMENTO, CA 95899-7300

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# UNDERSTANDING YOUR ENERGY BILL

## 4 Tier Indicator

Shows the pricing level in which you are being charged, which is based on how much energy you use.

## 5 PG&E Electric Delivery Charges

PG&E's electricity charges per kWh (kilowatt hour) for infrastructure maintenance and electricity delivery. The cost of generating electricity is credited back to Peninsula Clean Energy customers in the "Generation Credit."

## 6 Peninsula Clean Energy Electric Generation Charges

Peninsula Clean Energy's electricity charges per kWh (kilowatt hour) for purchasing the electricity that you use.

## 7 Details of Gas Charges

Information regarding your rate plan.

## 8 Gas Usage

Notes your usage by tier during a given timeframe.

## 9 Total Gas Charges

Total gas charges, including taxes and fees.

Please reference the gas and electric usage charts to track your energy use over time and see if you have made any significant energy use reductions.

**ENERGY STATEMENT**  
www.pge.com/MyEnergy

Account No: 0123456789-1  
Statement Date: 06/07/2018  
Due Date: 06/28/2018

**Details of PG&E Electric Delivery Charges**

05/03/2018 - 06/01/2018 (30 billing days)

Service For: 1234 SAMPLE ROAD  
Service Agreement ID: 0123456789  
Rate Schedule: E1 T Residential Service

05/03/2018 - 06/01/2018	Your Tier Usage	1	2	4
Tier 1 Allowance	210.00 kWh (30 days x 7.0 kWh/day)			
Tier 1 Usage	210.000000 kWh @ \$0.21169			\$44.45
Tier 2 Usage	125.000000 kWh @ \$0.27993			\$34.99
Generation Credit				-\$6.11
Power Charge Indifference Adjustment				\$11.21
Franchise Fee Surcharge				\$0.18
Daily City Utility Users' Tax (5.000%)				\$2.73
<b>Total PG&amp;E Electric Delivery Charges</b>				<b>\$57.45</b>

2016 Vintaged Power Charge Indifference Adjustment

**Service Information**

Meter # 1234567890  
Current Meter Reading 29,046  
Prior Meter Reading 28,711  
Total Usage 335.000000 kWh  
Baseline Territory T  
Heat Source  
Serial  
Rotating Outage Block

**Electric Usage This Period: 335.000000 kWh, 30 billing days**

Visit [www.pge.com/MyEnergy](http://www.pge.com/MyEnergy) for a detailed bill comparison.

**ENERGY STATEMENT**  
www.pge.com/MyEnergy

Account No: 0123456789-1  
Statement Date: 06/07/2018  
Due Date: 06/28/2018

**Details of Gas Charges**

05/03/2018 - 06/01/2018 (30 billing days)

Service For: 1234 SAMPLE BILL  
Service Agreement ID: 0123456789  
Rate Schedule: G1 T Residential Service

05/03/2018 - 05/31/2018	Your Tier Usage	1	2
Tier 1 Allowance	20.01 Therms (29 days x 0.69 Therms/day)		
Tier 1 Usage	0.000000 Therms @ \$1.18623		\$0.00
Additional Transportation Charge *			2.86
Daily City Utility Users' Tax (5.000%)			0.14
* Adjustment for a minimum transportation charge of \$0.09863/day			

**06/01/2018**

06/01/2018	Your Tier Usage	1	2
Tier 1 Allowance	0.69 Therms (1 days x 0.69 Therms/day)		
Tier 1 Usage	0.000000 Therms @ \$1.13399		\$0.00
Additional Transportation Charge *			0.10
Daily City Utility Users' Tax (5.000%)			0.01
* Adjustment for a minimum transportation charge of \$0.09863/day			

**Total Gas Charges**

**\$3.11**

**Service Information**

Meter # 12345678  
Current Meter Reading 500  
Prior Meter Reading 500  
Total Usage 0.000000 Therms  
Baseline Territory T  
Serial J

Visit [www.pge.com/MyEnergy](http://www.pge.com/MyEnergy) for a detailed bill comparison.

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5 HOME ENERGY SAVING TOOLKIT | USER GUIDE

# REDUCING ENERGY USE: PLUG LOADS



Household electronics account for up to 15% of electricity consumption in a typical California home. Small appliances and electronics can consume up to 75% of the electricity when on standby as they do when they are on. These are known as “vampire” or “phantom” loads, and eliminating them is a great way to save energy.



## ACTION #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. Using the Kill-A-Watt® meter, you can compare the energy use of your appliances to the average use as outlined in the table at the bottom of this page.



**Instructional Video:**  
How to Use a Kill-A-Watt® EZ Meter



<http://goo.gl/3Mv1Ku>

Follow these steps:

- 1 Plug the meter into an outlet; then plug an appliance or electronic device you'd like to measure into the meter. You may need to wait a couple seconds for the reading to display.
- 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 for your electricity rate. You can estimate the cost of electricity used by the appliance or device over time.



## TIPS:



- Unplug small appliances (toasters, coffee pots, etc.) when not in use or plug all appliances into a power strip and be sure to turn that off 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.

### Average Energy Consumption of Operating Standard Appliances\*

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

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

# REDUCING ENERGY USE: APPLIANCES

Major appliances account for a quarter of your household energy costs, and your refrigerator is likely to be the largest plug load in your home.



## ACTION #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.
- 2 Adjust temperatures if it is outside the target range: 36-40°F for refrigerator and 0-5°F for freezer.
- 3 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.
- 4 Repeat these actions with your freezer.



## TIPS:

### Refrigerator

- Regularly clean the coils on your refrigerator.
- Turn off the condenser feature in the refrigerator.
- If you have a second refrigerator, consider donating it.

### Washer & Dryer

- Wash full loads and use short wash cycles for mildly dirty laundry. This goes for your dishwasher too!
- Use cold water whenever possible.
- Use the washer's high spin cycle to reduce drying time, and try a clothesline instead of the dryer.
- Clean the lint trap after every use to ensure safe, efficient drying.
- Reduce electricity consumption and cost by using Washer and Dryer before 2 pm or after 7 pm.

### Dishwasher

- Use before 2 pm or after 7 pm.

### Heating & Cooling Systems

- Clean and replace filters once a month.
- Set your winter heating temperature at 68°F; set your summer cooling temperature at 78°F.
- Use blinds or curtains to prevent heat loss and gains.
- Circulate air with ceiling or portable fans.
- Replace A/C units (10 to 15 years or older) with EnergyStar® appliances. This could reduce your costs by 20 to 40%!
- Consider installing a whole house fan as an inexpensive method of cooling your home.
- If your furnace is reaching the end of its life consider installing a heat pump system to save energy and avoid furnace failure stress.



### Save With EnergyStar® Appliances!

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

# REDUCING ENERGY USE: LIGHTING

Lighting represents as much as 22% of your home's electricity use. You can reduce your energy bill significantly by switching to energy efficient lighting. The LED bulb provided in this kit use at least 75% less energy than incandescent bulbs and lasts 25 times longer.



## ACTION #3: SWITCH LIGHTBULBS TO LED BULBS

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

- 1 Replace the incandescent bulbs in fixtures that have the highest use; this will result in the highest savings.
- 2 Turn off the lamp and wait for the incandescent bulb to cool for 5 minutes.
- 3 Please use the LED bulb included in a non-dimmable, non-enclosed fixture. If you buy your own LED bulbs, read the packaging to see where the bulb should be used; not all LED bulbs are designed to work in every socket.
- 4 Match the equivalent wattage of the old bulb (a 60W incandescent should be replaced with a 9W or other 60W equivalent LED bulb).



## TIPS:

- Dimmable fixtures require dimmable LED bulbs or CFL bulbs; these are available at hardware stores. A standard bulb will quickly burn out if used in a dimmable fixture.
- Make sure to dust your bulbs at least every six months; a dirty bulb is an inefficient bulb.

## Next Steps:

Replace all bulbs in your home with LED bulbs. Replace incandescent bulbs first to save the most energy and money; then you can also replace any CFL bulbs. (CFL bulbs contain mercury and cannot be thrown away in the normal trash. Call 1-888-442-2666 for information on disposal.)

LED bulbs can be more expensive than the average light bulb. If you still want to save energy but can't spend extra money, first try looking for LED bulbs on sale.

For More Information on Energy-Efficient Bulbs:



<https://goo.gl/VgR5ZI>

Energy-Efficient Bulb Cleanup Guide:



<https://goo.gl/XWZLjH>



# REDUCING ENERGY USE: HOME ENVELOPE

Sealing cracks, gaps, and leaks and improving the insulation in your home can save up to 20% 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 jambs, ducts, and more.



## ACTION #4: USE THE INFRARED LASER THERMOMETER



**Instructional Video:**  
How to Use an  
Infrared Laser  
Thermometer



<http://goo.gl/bDJj2>

The Infrared Laser Thermometer detects heat gain and loss.

- 1 Turn on and point the thermometer at an interior wall or area of average internal home temperature. This is your reference temperature.
- 2 Point the thermometer at potential trouble spots in your home such as doors, windows, outlets, and exterior walls. Note any temperature fluctuations that may be caused by air leaks.
- 3 To detect small temperature differences, adjust the switch to 1°F. To detect larger temperature differences, adjust it to 5°F or 10°F.
- 4 If your toolkit contains a Black & Decker thermometer, the laser color will change depending on the temperature conditions:  
**Green = Good Red = Gaining Heat Blue = Losing Heat**  
You can see the temperature difference between the reference temperature and the scan temperature.



## TIPS:

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

- Caulk windows.
- Schedule a professional audit or contact a local contractor to address insulation needs around your light fixtures, vents, or other spots. The Bay Area Regional Energy Network is an excellent resource for this; visit [bayrenresidential.org](http://bayrenresidential.org) for information.
- Insulate ceilings, walls, attics, floors, crawl spaces, ducts and basements to recommended standards for optimum savings.
- Visit [goo.gl/ntgs07](http://goo.gl/ntgs07) for information on green insulation.

**Instructional Video:**  
How to Caulk  
Windows



<http://goo.gl/pdRsj>

# REDUCING ENERGY USE: HOME ENVELOPE

If you found any thermal leaks around your doors and windows in Action #4, you can use the weatherstripping provided in this toolkit to help stop those leaks.



## ACTION #5: INSTALL WEATHERSTRIPPING

Use weatherstripping to seal gaps in your doors and windows.

- 1 To check for drafts around doors and window jambs, you can either use the thermometer in Action #4 or try to slide a piece of paper through the area. If you see light, then that area will need weatherstripping. Focus on the sections where you feel air or can see light.
- 2 Clean the application area to ensure a good seal.
- 3 Cut a length of weatherstripping to match the length of the door or window where the strip will be applied. Peel back adhesive strip and apply.
- 4 Please return what you do not use with the Toolkit.



**Instructional Video:**  
How to Apply  
Weatherstripping



<https://goo.gl/cCPMUL>



**TIP:**

A door without weatherstripping may not look like a problem, but the amount of exposed area from all your doors and windows 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.



## ACTION #6: INSTALL OUTLET GASKETS

Another way to ensure proper insulation and help prevent air leaks that can result from poor wall insulation is by using outlet gaskets.

- 1 Identify exterior walls with the most exposure to draft (you can use the thermal leak detector from Action #4).
- 2 Choose an outlet or switch plate to upgrade.
- 3 Carefully loosen the face plate screw with a screwdriver (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.



**Instructional Video:**  
How to Install  
Outlet Gaskets



<http://goo.gl/HQ4YW>

# INTRODUCTION TO WATER USAGE

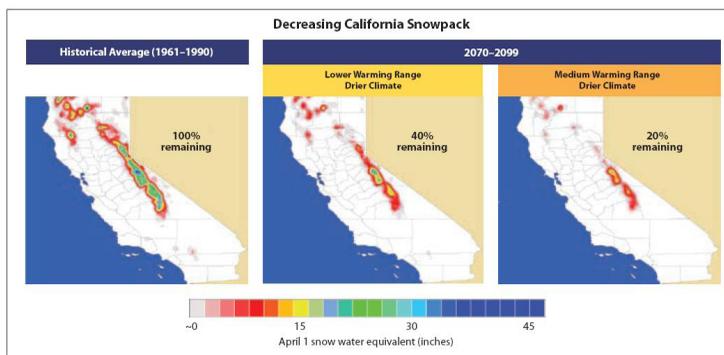


## OUR WATER SUPPLY

As a necessity for life, water is one of our most precious natural resources. In the Bay Area, we receive most of our water from the snowpack of the Sierra Nevada. With a changing climate and growing populations, our water resources have been shrinking year by year as rain is becoming more unpredictable, even with the heavy rainfall from 2016-17. While state and local leaders continue to work on long-term solutions to our water challenges, saving water daily helps stretch supplies and keeps water in reservoirs for the inevitable dry years to come.

To learn more about the condition of California's water resources visit [water.ca.gov/News/Current-Conditions](http://water.ca.gov/News/Current-Conditions).

The average American uses 90 gallons per day. To calculate how much water you use check out your water footprint at [watercalculator.org](http://watercalculator.org).

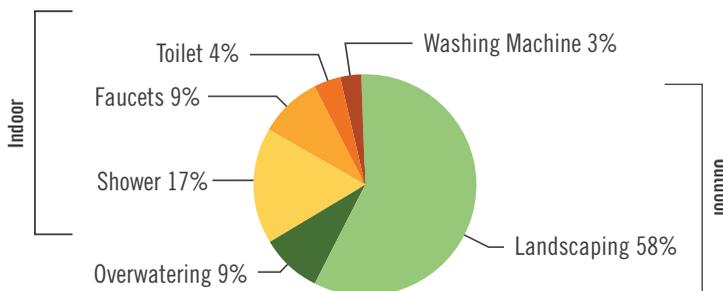


Luers A., Cayan D., Franco G., Hanemann M. and Cross B., California Climate Change Center (2006). Our Changing Climate: Assessing the Risks to California, p.7



## HOW WE USE WATER

### Indoor/Outdoor Water Use in a Typical Single Family Home



## SAVE A LITTLE WATER, SAVE A LOT OF ENERGY!

20% of the state's electricity and 30% of its natural gas is used to heat and treat water, making this the most intensive use of energy in California. Just as changing light bulbs is an easy and effective way to reduce energy use, water conservation is an economical way to reduce both energy use and greenhouse gas emissions. Reducing water use can therefore help lower your energy bills.

## REDUCING WATER USE: AT THE TAP



### ACTION #7A: MEASURE THE FLOW RATE OF FAUCETS

Using the water flow rate bag, measure the rate that water flows from your faucets and showerheads. Even if you have low flow aerators, it can be helpful to check the flow rate because aerators can corrode.

- 1 Turn on faucet and fill water flow rate bag for 5 seconds.
- 2 Record the gallons per minute measured on the flow rate bag.
- 3 If your water is flowing at a rate greater than noted in Action #8A, at the top of the next page, install one of the Toolkit aerators (Action #8).



### ACTION #7B: DRIP GAUGE

- 1 If you have a dripping faucet, hold the empty drip vial under the drip for 5 seconds.
- 2 Set it on a level surface and look at the gallons per day (GPD) and gallons per year (GPY) markings to see how much water the leak is wasting each day and year.
- 3 Visit <http://fishnick.com/leakcalculator> to see what the leak is costing you.



### TIPS:

- Think before you dump leftover water: make the most of it by giving it to your indoor or outdoor plants.
- Only use the dishwasher when full.
- When hand-washing dishes, don't let the water run. Fill one basin with wash water and the other with rinse water.
- To wash produce use a large bowl or tub of water instead of washing individually.



# REDUCING WATER USE: AT THE TAP



## ACTION #8A: REPLACE AERATORS

After measuring the flow rate of your aerators and showerheads using the flow rate measure bag, see if your fixtures are dispensing too much water. You can replace them to help save water.

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 the same direction as the new aerator or showerhead screws on.
- 5 Screw on new aerator clockwise by hand.
- 6 Turn on faucet to test for leaks, and tighten with pliers if necessary.

**Bathroom Sink:** 0.5 gpm

**Kitchen Sink:** 1.5 gpm



**Equipment:**  
Faucet Aerator



**Tool:**  
Pipe Thread  
Seal Tape



**Tool:** Pliers

**FACT:** Over half of indoor water use takes place in the bathroom. Installing aerators can save 1.2 gallons per person per day.



## ACTION #8B: 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 2.0 gpm, you should replace with the showerhead provided. Instructions: Identical to Action #8A.

### Other Water Saving Tips

- Turn water off while brushing your teeth and shaving.
- Make use of a shower timer, which helps you save water and energy at the same time. Try to take a shower that is five minutes or less.



**Instructional Videos:**  
How to Change Your Faucet  
Aerator and Showerhead

**Showerhead:** 2.5 gpm

Faucet Aerator



<https://goo.gl/ZHDeo>

Showerhead



<https://goo.gl/qkcx8>

## REDUCING WATER USE: BATHROOM & WATER HEATER



### ACTION #9: CHECK YOUR TOILET FOR LEAKS



A toilet that runs constantly can waste up to 200 gallons of water per day, which can cost you \$250 over the course of a year! 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 at the bottom of the tank can cause toilet leaks and should be replaced.



### ACTION #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. (Collect excess water in a pitcher or bucket and use to water plants).
- 5 Insert thermometer and wait for it to reach its highest point.
- 6 Record highest point temperature.
- 7 Adjust setting so that your hot water runs at 120°F. If your water heater does not have specific temperature settings, this action might take a few tries.



Heating water typically accounts for up almost half of the natural gas use in your home.

**Instructional Video:**  
How to Adjust  
Your Water Heater  
Temperature

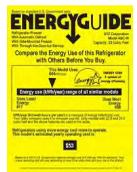


<https://goo.gl/x27rLG>



### TIPS:

- Insulate the hot water pipes leading from the water heater and use an insulating sleeve on the actual heater. This helps conserve energy.
- Set your water heater to “Vacation Mode” to conserve energy when you are away for long periods of time.
- 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. They should only be running when hot water is needed.



## REDUCING WATER USE: OUTDOORS

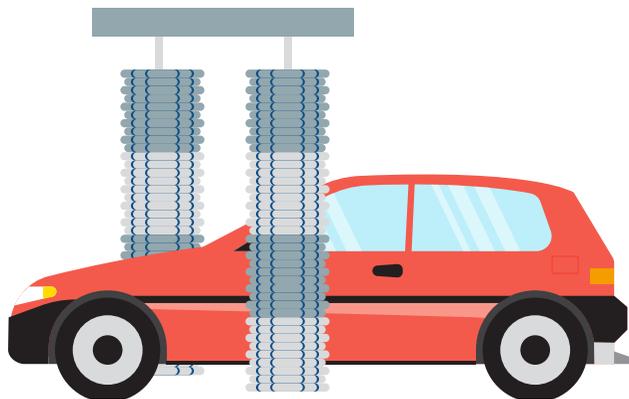
- **Irrigation Leaks** – Regularly check for and fix leaks in your irrigation system; leaks can waste thousands of gallons of water annually.
- **Drip Irrigation** – Consider switching to a drip irrigation system to save water.
- **Timing Watering** – Water when temperatures and wind are the lowest: in the evenings and in the mornings before sunrise. This reduces evaporation and allows water to soak deeper into your landscaping.
- **Irrigation Controls** – Change your irrigation schedule for each season depending on local weather conditions. Consider upgrading to a weather-based irrigation controller.
- **Maintenance Practices** – Use a broom instead of water hose to clean paved outdoor areas.
- **Drought Resistant Plants** – Remove part or all your grass and plant native, drought-resistant species. These will require much less water and will therefore help reduce your water and energy bills.
- **Pool Filter Scheduling** – 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.
- **Excess Shower Water** – Place a large bucket in your shower to capture excess water for watering your plants.



### CAR WASHING

When your car needs a wash, be sure to visit a commercial car wash that recycles wash water and saves water. A home car wash uses 80-140 gallons of water, whereas most commercial car washes with water recycling 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. For more on stormwater pollution, visit: [flowstobay.org](http://flowstobay.org).



# SUSTAINABLE LIFESTYLE



## TRANSPORTATION

- Under-inflated tires will decrease your gas mileage, 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.
- Walk, bike, or take public transportation whenever possible. Visit the SamTrans website at [samtrans.com](http://samtrans.com) to view local public transit routes and schedules.
- “Safe Routes to School” are cool! Encourage your kids to commute by walking, biking, scootering, or taking the school bus to school. Visit [smcoe.org/learning-and-leadership/safe-and-supportive-schools/safe-routes-to-school-\(sr2s\)](http://smcoe.org/learning-and-leadership/safe-and-supportive-schools/safe-routes-to-school-(sr2s)) to learn the ways to create a fun, healthy, and safer way to get to school.
- Check with your employer to see what commuter benefit options they offer such as pre-tax benefits for public transportation or shuttles.
- Prefer to drive? An electric vehicle is a great option.



San Mateo County  
**SAFE ROUTES TO SCHOOL**  
Healthy Kids • Green Communities • Safe Journeys



## KITCHEN

- **Shop your refrigerator first.** In the U.S., 40% of our food goes uneaten. Eat what you have before shopping for more by taking EPA's Food Recovery Challenge. Visit <https://www.epa.gov/sustainable-management-food>.
- **Cook efficiently.** Heat only as much water as needed and cover pans to reduce cook time and energy use.
- **Try the less- or no-meat option.** Meat production uses an enormous amount of water and energy. 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.
- **Opt for organic.** Avoiding pesticides is better for the environment and your health.
- **Practice efficient dishwasher habits.** Scrape, don't rinse, dishes. Air dry dishes by turning off the heat setting and opening the door. This will save energy and water.



## FINAL STEPS



### RETURN THE DIY TOOLKIT TO THE LIBRARY

**Make sure all tools (see list on page 2) are in the kit before returning it to the library. Please return the toolkit as soon as you can so other library patrons can check it out.**

Now that you've used the toolkit and started the journey to a more energy efficient home, you have just a few things left to do:

- 1 Consider amplifying your savings through the whole home performance approach of Bay Area Regional Energy Network—visit [bayrenresidential.org](http://bayrenresidential.org) to learn more and get started.
- 2 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](http://gosolarcalifornia.org) to learn more about solar options for your home.
- 3 Spread the word about San Mateo County Energy Watch and share your experience using the toolkit.
- 4 Enjoy the savings from all your home efficiency actions!

**Visit our website for an electronic version of this handbook. Remember to fill out the feedback form for a chance to win a solar phone charger, at <https://goo.gl/rkbic5>**





# SAN MATEO COUNTY ENERGY WATCH

**Congratulations on taking these  
steps to save vital resources!**

## CONTACT

**San Mateo County Energy Watch  
455 County Center, 4th Floor  
Redwood City, CA 94063  
[smcenergywatch.org](http://smcenergywatch.org)  
[smcenergywatch@smcgov.org](mailto:smcenergywatch@smcgov.org)**

 This handbook was printed on recycled paper.

As a part of the State's energy efficiency portfolio funded by California utility customers, San Mateo County Energy Watch (SMCEW) exists to help residents, businesses, and public agencies throughout San Mateo County save energy easily and cheaply. 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.

### Your Community Resource Conservation Partners:

