Home Energy Audits

A home energy audit is the first step in making your home more efficient. An audit can help you assess how much energy your home uses and evaluate what measures you can take to improve efficiency.

You can perform a simple energy audit yourself, or have a professional energy auditor perform a more thorough audit.

Do-It-Yourself Audits

It is always better for you to perform the energy audit by yourself as, in so doing, you will be more alert about energy usage in your home. Proceed by following the steps below.

Step 1: Get to know your electricity bills

Bills are never fun, but they contain valuable information.

Compare your bills by month for as many months past as you can, and look for trends in usage or obvious changes. Note both the kilowatt hours you are typically using as well as the amount of the bill.

To make your task easy, the EEMO has developed a simple comparator which you may access by clicking here. Save the file on your pc and you may use it every month by inputting data from new bills.

Do you see any spikes? Can you remember why? Was it through the use of a new appliance you have purchased? Get to know what it is that you are paying for every month.

Step 2: Get to know more about your appliances

Appliances are major energy users in your home, so your task should be to identify those that may be costing you a lot, and to find ways to trim waste.

Begin by checking the energy consumption of your appliances.

You can estimate how much energy an appliance uses with the following formula:

\[
\text{Wattage} \times \text{Hours Used Per Day} \div 1000 = \text{daily Kilowatt-hour (kWh) consumption}
\]
The wattage of an appliance may be obtained from the name plate affixed to it. If the information is in kW, convert it to watts before using the above formula. Note: 1 kilowatt (kW) = 1,000 Watts.

To get the monthly consumption, multiply this by the number of days you use the appliance during the month (divide the time by 3 to account for the idling time of your refrigerator).

Calculate the annual cost to run an appliance by multiplying the kWh per month by 12 and by the rate per kWh indicated at the back of your electricity bill for the tariff assigned to you.

Too complicated? Then use the energy calculator, developed by the EEMO, which you may access by clicking here. Input whatever data is available at your end and save the file on your pc. You may reuse the file at ease.

You may not have realized how much energy certain appliances require, from hair dryers to air conditioners! So you may now decide to use less important items more sparingly and, even better, consider using less costly alternatives.

Maximize natural ventilation and reduce the use of your air conditioner.

If old appliances are found to cost you a lot, you now have the motivation to upgrade to more energy efficient models.

If your refrigerator is using too much energy, you may simply need to turn down the temperature dials, or clean or repair the door seals.

**Step 3. Look out for the Phantom Loads**

Did you know that TV uses electricity even when turned off? The same is also true for your stereo, microwave oven, clock radio and other electronics. Even chargers for cell phones and MP3 players siphon energy when plugged in - even if they are not charging anything!

A "phantom load" is any appliance or electronic unit that uses energy even when turned off. Some people call them "vampire appliances" or "energy vampires". These are basically appliances which are left on stand-by.

You may think that by turning off the appliance, you have cut off the electricity supply to that appliance. This is not the case! The appliance will still consume energy on stand-by mode.

On this link [http://standby.lbl.gov/summary-table.html](http://standby.lbl.gov/summary-table.html) you can get an idea of the stand-by
power consumption of many appliances/electronic units.

Now, see how many such energy vampires you have in your home. They contribute in increasing your electricity bill! They also place an unnecessary pressure on the Central Electricity Board.

Any difficulty in identifying these energy vampires? That’s easy. These are generally appliances with remote controls, such as TVs, VCRs, DVDs and audio equipment. They generally feature a continuous digital display -- like those glowing clocks on stoves and microwave oven. Some feature rechargeable batteries, such as cordless phones (which use energy even after the battery is charged). Appliances with external power supplies, such as inkjet printers and iPod chargers also fall into the category of energy vampires.

How can you combat vampires? Simply unplug the appliance when not in use. Note, however, that too frequent plugging and unplugging is not good and may represent a safety hazard. In these cases, consider plugging the appliance into switched sockets. No need to unplug the appliance. Just press the switch and the appliance will be truly turned off and it won’t siphon energy when not in use.

When it is not possible to do away with the stand-by mode, consider buying energy-efficient appliances bearing the Energy Star label or its equivalent. At least, the appliance will siphon less energy on stand-by.

Step 4: See the light

Lighting represents about 10% of a typical electric bill. Replace your incandescent lamps by compact fluorescent lamps (CFLs) or, even better, by LED ones. The latter consume less energy than CFLs and may be slightly more expensive. If you can afford it, replace all the incandescent lamps. Else, start with a few lamps in those places where you have the lights on the longest. Also, be aware that rapid on and off switching decreases the life of CFLs, so it may not be worth it to install the pricier bulbs in places like closets, where you rarely have the lights on.

Consider how you use lighting in each room. Would it be better if you use task lighting? Do away with halogen torch-style floor lamps if you have any. These lamps use a tremendous amount of energy. Consider installing motion detectors, which are especially
good for halls and exterior lights, since you don't have to worry about people accidentally leaving them on.

**Step 5: Cooling requirement**

Air conditioners are no more luxury items in Mauritius and their use are ever increasing. Yet, these are by far the largest energy consumers in a house and contribute in significantly increasing your electricity bill.

Can you do away with air conditioners? May be or at least you could reduce its use by promoting natural ventilation in your house. On this link [http://gbtech.emsd.gov.hk/english/utilize/natural.html](http://gbtech.emsd.gov.hk/english/utilize/natural.html) you can get some valuable information on natural ventilation though it may be more suitable for consideration at design stage.

Another way to reduce the use of your air conditioner is to tackle the issue of heat gain. The heat from the sun absorbed by the concrete roof and walls radiate a few hours later into the house and contribute in increasing the indoor temperature. Consider using a heat reflecting paint on your roof and walls. Much less heat will be absorbed; hence the indoor temperature will generally remain comfortable.

**Step 6: Assess the Results**

After you have made some improvements, revisit your audit steps in a month or two. Compare your electricity bill with those of the past months. Input the new data into the comparator (see Step 1 above). Any decrease in the bill? This will be a motivation to you to consider going back through the steps above, looking for other appliances or areas you may have missed before.

**Hire a Professional Home Energy Auditor**

If you cannot manage to carry out the energy audit by yourself or if you are interested in getting specific recommendations for improving the efficiency of your home, consider contacting a professional Energy Auditor. The auditor can use a variety of techniques and equipment to determine the energy efficiency of your home. The auditor can also advise you on modifications to be brought to your building envelope to increase natural ventilation and reduce heat gain.

But remember, audits alone don't save energy. They are merely reports or lists of recommendations. You need to implement the recommended improvements to make your home more efficient in energy use.
How much will it cost me to implement the audit recommendations?

This will depend on how much energy inefficient is your home. Nevertheless, it may not be necessary for you to implement all the recommendations at one go. Start by implement the least cost ones first and plan for the implementation of the others over time, in accordance with your budget and/or savings to be made on your electricity bill.

We hope the above will be useful to you and we welcome any feedback on eemo@mail.gov.mu