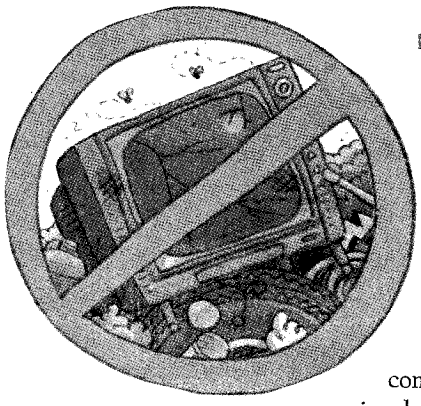
Green and Climate-Friendly Televisions



Through the years, it's become apparent that many *Real Money* readers aren't big TV watchers. So our editorial staff thought we should warn you all that early next year, television broadcasters will transition completely from analog to digital broadcasting, meaning that any TV not equipped to receive digital broadcasts won't get a signal after February 18, 2009.

The upside of this change is that compared to analog broadcasting, digital signals allow more information to be sent on a smaller group of frequencies, freeing up valuable airwaves for other uses, including public safety.

The significant downside, however, is that the switch is expected to send millions of analog television sets containing toxic components like lead-filled cathode-ray tubes to landfills—as people mistakenly assume they'll have to toss their old TVs and buy new flat-screen models to navigate the switch.

Fortunately, with a little information, you can keep your old TV working for many more years. Below, we tell you how and also include tips on what to look for when you do need a new TV.

what?

Navigate the upcoming switch from analog to digital television signals in the greenest way possible.

why?

Save money and resources by keeping your old TV working through the switch and for as long as possible.

wow!

When you do need a new TV, protect workers and the Earth by choosing one that saves the most energy, has the fewest toxic components, and comes from a company that recycles responsibly.

Keep Your Old TV

If you have an older TV at home, chances are it's a cube-shaped cathode-ray (CRT) set. No matter how ancient it is, your old television will likely do just fine after the switch. If you currently subscribe to a satellite or cable service, you'll continue to get a signal after February 18, whether you have an analog or digital TV.

But if you use an antenna to watch TV, those over-the-air signals may cease after the switch. Fortunately, it's easy and cheap to fix this problem and keep using your set. First, if your TV was made after 2003, it may have a built-in digital tuner. Look for labels on your set that say something like "integrated digital tuner" or "digital receiver built-in." If that's the case, you'll still be able to get an over-the-air signal.

If your TV isn't equipped with a digital tuner, you can use a set-top converter box to convert the digital signal to analog, so you can receive an over-the-air signal. Every US household is eligible to receive two $40 coupons from the government to purchase a converter, which range in price from $50–$75. Visit www.dtv.gov to find out how to get your coupons. And be sure to look for an Energy Star converter box to ensure that you're using the most efficient model possible.

In terms of energy efficiency, CRT TVs do as well or better than comparable flat-screen models, so you won't be saving much energy by making the switch. Therefore, your greenest option is to keep your CRT TV as long as possible, preventing more resources and energy from being used to make a new TV.

When Your Old TV Dies ...

But maybe you really do need a new TV. In that case, you have a few new types to consider.

Some manufacturers are starting to phase out production of CRT televisions, in favor of new flat-screen models, which generally have better picture quality and are much thinner and lighter. The more sophisticated flat-screen technology has also made extra-sharp high-definition (HDTV) images possible, as long as stations broadcast in high-definition.

When shopping for a new or used flat-screen television, you can choose an LCD (liquid crystal display), plasma, or rear-projection TV. The technical differences between these three types are fairly complex (look them up at ConsumerReports.org if you're curious). All three can be HDTV-compatible, so you'll probably find picture-quality and price to be comparable among all three types. It's the environmental impacts that can differ greatly.

Energy Efficiency Considerations

Let's just state right off the bat that you want to avoid energy-hog plasma televisions. The average plasma TV uses more energy per year than a refrigerator, which is the biggest energy user in most US households, says the American Council for an Energy Efficient Economy (ACEEE).

Another problem with plasma TVs is that the higher the resolution, or how sharp the image is, the worse they get in terms of energy use. Flat-screen TVs are available in 720p or 1080p resolution (the "p" stands for "pixels," which are the little dots of light that make up your image). Resolution only matters with a plasma TV, because each pixel is illuminated separately—therefore, a 1080p plasma TV will use more electricity than a 720p plasma TV. Higher resolution in an LCD or rear-projection TV won't affect their energy use because all of the pixels on the screen are illuminated by one light source.

No matter which TV you choose, it's important to remember that size matters. If you swap your old 26-inch CRT television for a monstrous 52-inch LCD TV, you're not going to save energy.

Though energy use among different models can vary widely, for a rough idea, Efficient

Products.org, a Web site that researches the energy efficiency of consumer products, says that for smaller TVs less than 42 inches, LCD models are more efficient than CRTs. Rear-projection models are mainly available in larger sizes (50 inches and higher). If you want an enormous television, the rear-projection models tend to be more efficient than comparable LCDs or CRTs.

In the future, manufacturers are looking to mass-produce LED (light-emitting diode) and OLED (organic light-emitting diode) TVs, which may be even more efficient than current models.

BEST MODELS: Your most efficient option is an LCD TV less than 42 inches. CNET.com rated 128 flat-screen TVs by their energy use in October. (Find those ratings here: http://reviews.cnet.com/tv-power-consumption.) Among the very best was the Philips Eco-TV (see box at right).

Also, look for the Energy Star. While the program used to rate televisions based only on stand-by mode—meaning how much power they leak when turned off—starting in November, the ratings will change to also reflect power usage when the sets are turned on.

If you choose an LCD, you'll want to have the set calibrated to a medium level of backlighting—instead of the torch-bright backlighting the manufacturer sets it to so the screen will look nice when displayed in stores. Check your manual to see if the set has a "home" setting you can select, or call an electronics professional to calibrate your TV. It will save energy and keep your TV from burning out quickly.

Also, remember that TVs leak power even when turned off. Plug your TV into a power strip, and switch off the strip to stop those leaks.

Climate Impacts

Earlier this year, Professor Michael J. Prather of the University of California–Irvine sounded the alarm about a hidden greenhouse gas that is often used in the production of flat-screen televisions. According to Prather's research, nitrogen trifluoride (NF_3), which is often used to clean flat-screen manufacturing equipment, is 17,000 times more potent a greenhouse gas than carbon dioxide.

While industry representatives have said they take precautions to contain NF_3, Prather argues that companies may very well be lax about letting it escape, since it's not regulated by the US government or under the Kyoto Protocol.

Fortunately, some companies are finding alternatives to NF_3. Linde Electronics, a gas and chemical company, has created a process that allows pure fluorine to be used in place of NF_3, says Steve Pilgrim, Linde's global marketing manager.

"Fluorine has a global warming potential of zero," says Pilgrim. "It's also more efficient to use, so it's cheaper. We're doing our best to convert manufacturers to fluorine, either on the economic or the environmental argument. Performance is unaffected by which gas you use."

BEST MODELS: So far, Toshiba-Matsushita Display and LG have converted much of their manufacturing operations to fluorine instead of NF_3.

Toxic Innards

As more people are becoming aware, televisions and other electronics often contain hazardous innards. In addition to the lead problem with CRT TVs, chemicals like hormone disrupters polyvinyl chloride and brominated flame retardants, neurotoxic mercury, and more can be found in flat-screen and CRT TVs alike.

BEST MODELS: Samsung and Sony scored best on the "2008 Greenpeace Guide to Greener Electronics," which ranks companies based on the toxicity of their products and whether they have robust take-back and recycling programs. (Find the report at www.greenpeace.org/greenerelectronics.) Though Philips received a poor ranking from Greenpeace, its Eco-TV is less toxic than many models (see right).

Responsible Recycling

To ensure that old TVs don't end up clogging landfills and leaking hazardous substances, it's important for manufacturers to take their products back for recycling. However, irresponsible recyclers often send old electronics to developing countries like China, where organizations like the Basel Action Network (BAN) have reported seeing workers sort and dismantle toxic electronics by hand, unprotected. Recyclers listed on BAN's Web site have pledged not to export e-waste and to recycle it responsibly. Find the list at www.ban.org/pledgel.html.

Co-op America's ResponsibleShopper.org also notes that many electronics companies, like Sanyo, Toshiba, and Sony, are tied to worker exploitation along their supply chains.

BEST MODELS: Samsung, LG, and Sony have the most robust recycling programs. Consumers can drop their Samsung electronics at 174 locations across the US. The company has pledged not to incinerate, landfill, or export its e-waste (it's not a BAN signer): www.samsung.com/recyclingdirect.

LG (Goldstar, Zenith) has 160 drop-off sites across the US for its old electronics, which are recycled through Waste Management Recycle America, a company that is in the process of qualifying as a BAN-pledge signer: http://us.lge.com/green. Sony has a similar program, also run through Waste Management: www.sony.com/recycle.

In Short ...

As their monetary prices come down, flat-screen TVs don't have to come at a steep cost to human health and the Earth. Keep your old TV for as long as you can, and when you need a new one, encourage new green technology by buying green.

—Tracy Fernandez Rysavy

The Eco-TV

The Philips "Eco-TV" series—which, strangely enough, are easier to find in a store under their clunkier model numbers, 32PFL5403, 42PFL5603, 47PLF5603, and 52PFL5603—are some of the greenest models on the market.

Ranging from 32- to 52-inches, these 1080p resolution LCD TVs are free of six toxic components banned in the European Union, which are common in most televisions: lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl, and polybrominated diphenyl ether flame retardants.

Electronics rating site CNET.com noted that the 42" Eco-TV used about 30 watts less than the "most miserly" 42-inch TVs CNET experts had tested. It does so by automatically dimming in response to light levels in the room and during darker scenes on the TV itself. And it uses a relatively miniscule 0.15W on standby, among the best that CNET raters had seen.

The sets even come in recycled packaging.

Philips announced late this summer that all its TVs will now employ the green technologies featured specifically in its Eco TV series.