Spread the word

Downloading a video uses more data and takes more energy than downloading a photo; transmitting a picture takes more energy than a voice message, which takes more than text. Skyping uses more energy than plain talk. **With the Internet of Things** (machine-to-machine communication), the Internet grows exponentially larger, and e-waste increases. Don't buy into it.

Resources and references

Katie Singer, author of *An Electronic Silent Spring* (Steiner Books, 2014) and "Limits to Electronic Growth," (*Development*, 2018) and consultant with the EMR Policy Inst., prepared this flyer.
www.electronicsilentspring.com/e-reduce

References:

L. Belkhir and A. Elmeligi, "Assessing ICT global emissions footprint: Trends to 2040 and recommendations," 2018.

Cntr for Energy Efficient Telecommunications, U. of Melbourne, "The Power of Wireless Cloud," 2013.

Kris de Decker, "Why We Need a Speed Limit for the Internet," 2015.

Mark P. Mills, "The Cloud Begins with Coal," 2013.

Dr. Tim Schoechle, *Re-Inventing Wires*, 2018.

Ted Smith, ed., *Challenging the Chip*, 2006.

Xianlai Zeng et al, "Urban Mining of E-Waste," 2018.

If you can translate this flyer into Arabic, Chinese, French, German, Hebrew, Hindi, Japanese, Russian or Spanish, please contact:
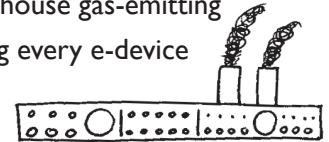katiesinger@electronicsilentspring.com.

If you're not aware that you're part of the problem, you can't be part of the solution.

—Professor Bill Torbert
Boston College School of Management

The Internet is the largest thing that humanity has built.

Every Google, Amazon and GPS search and video download (*every* online activity) requires an international network of cell sites and data storage centers that consume *huge* amounts of water and greenhouse gas-emitting electricity. Manufacturing every e-device consumes electricity, toxic chemicals, water and materials mined under abusive conditions. The world now has more mobile phones than toilets. Manufacturers produce more transistors than farmers grow grains of wheat or rice. Because of increased video streaming and "smart," Internet-connected devices, e-technologies' power demands increase 20% per year. The Internet could generate 3.5% of greenhouse gas emissions (more than aviation and shipping industries) by 2020 and 14% by 2040. Wireless technologies consume ten times as much energy as wired. They also risk interception and privacy loss and generate more electromagnetic radiation (EMR) than wired tech.

How do we reduce the Internet's footprint?

Internet Footprint Quiz

Name the Internet's main energy hogs.

1. *Access networks:* World-wide infrastructure that includes cellular antennas, radio transmitters and routers.
2. *Data centers:* Run by businesses, universities, governments, hospitals. Packed with cooling systems and computers that store websites, records, GPS, etc., data centers' CO_2 emissions grow by 13% per year.
3. *Embodied energy:* Used to mine raw materials, manufacture and ship each item to its end-user.

Why does energy efficiency increase energy demand? As devices get less expensive, more people buy them, which increases consumption of raw materials and energy.

Which consumes more electricity: streaming 52 hours of video or running a refrigerator for a year? 52 hours of video streaming.

How much electronics do we discard? Globally, we discard 44.7 million metric tons (49.27 million U.S. tons) of e-waste per year. A four-person U.S. household discards about 176 pounds per year.

How to reduce the Internet's footprint

- Buy repairable, upgradable, modular electronics. Wait at least four years to upgrade.

- Delete old emails and Facebook posts.

- Since wireless tech uses 10 times as much energy as wired (i.e. fiber optics), download videos via wired devices. Better yet, *rent* videos.

- If you must have a mobile device, keep Wi-Fi and Bluetooth off unless you're using them. Keep "Airplane mode" on. Limit message-checking to every two hours.

- Delay children's use of electronics until they have mastered reading, writing and math on paper.

- Text, email or call rather than Skype. Better yet, talk in person.

More ways to e-reduce

- *Web designers*: Minimize videos, pop-ups and slide shows. These consume *lots* of energy and thereby emit *lots* of CO_2. Link or embed videos, do not re-host them.

- *Manufacturers*: Make modular, repairable, wired electronics that re-use functional components. Collaborate with multiple companies to require suppliers to disclose all chemicals and use safer alternatives. Buy raw materials and parts only from sources that verify worker protections.

- *Service providers:* Use renewable power. Do not beam the Internet from space, since launching thousands of rockets degrades the ozone layer, impacts atmospheric heating and speeds climate change.

- *Municipalities*: Take ownership of your electric, gas and water companies. Restore/maintain electro-mechanical utility meters. Provide fiber-optics-to-the-premises as a public utility. Ban Bitcoin mining. At recycling centers, let robots "mine" re-usable metals from discarded electronics to generate income.