What Can We Do As Consumers About **Climate Change**?

We hear news almost daily about the impacts of climate change on many aspects of our lives – weather, property, livelihood, health, the environment. We hear about what we can do to reduce these impacts by using energy-efficient appliances and weatherproofing our homes. We also hear about the benefits of driving fuel-efficient or electric cars, sharing rides, and using public transportation. But there are other important things that we can do to live more sustainably, such as focusing on the products and materials that we all rely on and enjoy because these also contribute to greenhouse gas emissions.

Reducing the climate impacts from our purchases can take us into an exciting future, as our buying habits evolve and help protect the earth from climate change. Reducing the impacts on our climate from the things that we buy can help everyone achieve a better and safer future. Fortunately, we already know many of the solutions.

What are Greenhouse Gases & How Do They Relate to Climate Change?

The U.S. Global Change Research Program defines greenhouse gases as those that absorb heat in the atmosphere near the Earth's surface preventing it from radiating away into space. If the atmospheric concentrations of these gases rise, the average temperature of the lower atmosphere will gradually increase, a phenomenon known as the greenhouse effect. Research has found that:

- Carbon dioxide is an important greenhouse gas that is released when fossil fuels – such as coal and gasoline – are burned to produce energy.

- Methane gas is a potent greenhouse gas. According to the U.S. Environmental Protection Agency, pound for pound, its impact is more than 28 times greater than carbon dioxide over a 100-year period.

- Greenhouse gases emitted by human activities explain the world's observed warming over the past century.

- Reducing the amount of greenhouse gases emitted can reduce future warming and associated impacts.

The scientific basis for greenhouse gases as a cause of climate change is covered in detail by the Reports of the Intergovernmental Panel on Climate Change.

Making & Consuming

Americans consume a lot of things; by one estimate more than 23.6 tons of material consumption per person per year. This includes food, clothing, building materials, household items, phones, electronics, toys, furniture, cars, recreational equipment, and much more.

It takes a significant amount of energy to extract and process the raw materials to produce and transport these products and to

Food Waste Reduction

A family of four in the U.S. throws out an average of $1,800 worth or 1,600 pounds of uneaten food each year, according to the Natural Resources Defense Council. The U.S. Environmental Protection Agency estimates that food waste makes up over 20 percent of our trash. The greenhouse gases associated with this waste come principally from the energy used to produce the food, including emissions from livestock and fertilizer use. While throwing out food can result in the release of significant amounts of methane (a potent greenhouse gas) as the food decomposes, the greenhouse gas emissions associated with producing the wasted food are much greater. Research by the State of Oregon has found that the greenhouse gas emissions from producing and transporting the food consumed in the State were more than 50 times higher than emissions from disposing of food waste.

There are many actions that we as individuals and organizations can take to reduce the amount of wasted food. For example, a 2016 Roadmap developed by ReFED proposed a path to a 20 percent reduction of U.S. food waste within a decade through 27 cost-effective, feasible, and scalable solutions. Their analysis found that the proposed solutions would divert 13 million tons of food waste from landfills and reduce on-farm losses. They projected that implementing their Roadmap would generate 15,000 new jobs, double recovered food donations to nonprofits, reduce up to 1.5 percent of freshwater use, and avoid nearly 18 million tons of greenhouse gas emissions annually. The EPA and USDA have set a 50 percent reduction of food loss and waste goal by 2030. New Jersey has adopted the same goal and California, Oregon, and Washington have embraced a similar regional goal with a focus on prevention.

Composting food waste reduces greenhouse gas emissions and produces a soil amendment that can be used to improve gardens, farms, landscaped areas, and lawns. Furthermore, many U.S. communities are diverting food waste to a process called anaerobic digestion, which also reduces greenhouse gases. This process generates a fuel that can be used to power heating, air conditioning, and ventilation systems and vehicles or to produce electricity, and thereby replace fossil fuel use. While composting and anaerobic digestion are helpful, avoiding the wasting of food in the first place has far greater climate benefits, because it eliminates upstream emissions.

dispose of them when they reach the end of their useful life. Some products require energy to work. All phases of a product's life, or its *life cycle*, can generate greenhouse gases.

The sum of all of the energy that it takes to make, use, and discard a product or material is called its *embodied energy*. Researchers can measure this, along with its associated greenhouse gas emissions. For most products, the greatest contributions to embodied energy and greenhouse gas emissions happen during production (in other words, they are generated before the product is sold, or delivered to a home or business). The total greenhouse gas emissions associated with a product or material is known as its *carbon footprint*.

The U.S. Environmental Protection Agency found that about 42 percent of all greenhouse gases are associated with the production, transportation, and disposal of materials and products. Studies by the Oregon Department of Environmental Quality have found similar results and have also revealed that greenhouse gas releases from consumption are increasing even as those from the direct use of energy by consumers in their homes and for transportation are decreasing. Efforts to reduce emissions from direct use of energy by households and for transportation are clearly having some success and need to be accelerated. But we can also play a big part in reducing greenhouse gas emissions from consumption by taking one or more of the actions listed here.

10 Things You Can Do to Make a Difference

Here are some ideas for actions we can all take to decrease greenhouse gas emissions.

1. BUY WHAT YOU NEED & BUY FOR DURABILITY.

When you are shopping in a store or buying things online, ask yourself what you need. Consider how well-made the product is and whether it will last.

2. BORROW & SHARE.

If you need something for a project or task, see if you can borrow it from a neighbor, family member, or friend, rather than purchasing it new. For example, if you need a tool, like a drill or electric saw, and you don't have one, see if someone nearby can lend it to you. Offer to share your tools and mobile appliances with family, neighbors, and friends if you know they could use them, so they don't have to buy their own.

3. REUSE.

Consider repurposing a product or packaging instead of throwing it out when you are finished with it. For example, when giving a gift, think about whether you need to buy something new or whether an antique or something that you already have would be more personal and meaningful. If it has to be wrapped, consider using a reusable gift bag instead of single-use wrapping paper. In other words, ask yourself whether there are reusable or secondhand alternatives that can express your feelings as a giver.

4. REPAIR IT.

If something you own breaks, try having it repaired. There may be a repair shop, a pop-up local repair event (sometimes called a repair café or fix-it clinic), or service provider in your area that can help. If repairing isn't an option, consider buying a used or refurbished replacement.

5. BUY RECYCLED.

Many products made with recycled materials have a lower carbon footprint than comparable products made without recycled content. As we buy more products with recycled content, the market for these products will grow, and suppliers will tend to produce them instead of non-recycled products.

6. DON'T WASTE FOOD.

Buy only what you plan to eat and keep track of what goes to scrap. Use U.S. EPA's Food Too Good to Waste tool for tips on shopping, food storage, and use habits.

7. KEEP FOOD OUT OF DISPOSAL.

Send food scraps for animal feed, energy production, or composting. If your community offers access to commercial or municipal composting or anaerobic digestion, see if you can send your food scraps to these service providers or try composting at home. Fats, oils, and grease that are left over from cooking can be poured into a container and dropped off to make biofuel, if there is a service provider in your area.

8. HELP BUSINESSES TO MAKE A DIFFERENCE.

There is a growing call for companies to label their products with information about their carbon footprint. This would help inform all of us about the greenhouse gas impacts of the products we purchase.

9. ASK YOUR STATE OR LOCAL GOVERNMENT TO ACT.

Consider working with your local schools, municipal offices and facilities, and libraries to help them make a difference in their purchasing. Governments in the U.S. at all levels spend more than $1.3 trillion annually on goods and services. Research shows that those purchases account for about 35 to 55 percent of the total greenhouse gas emissions associated with government operations. Some government agencies are considering the carbon footprint and recycled content of their purchases when buying, and more can be encouraged to do so.

10. KEEP LEARNING ABOUT WHAT AFFECTS CLIMATE CHANGE.

Share your knowledge with others. Start with the useful resources listed here.

Useful Resources

Resources that you might want to check out:

- Food Too Good to Waste toolkit - www.epa.gov/sustainable-management-food/food-too-good-waste-implementation-guide-and-toolkit
- Save the Food - https://savethefood.com/
- Northeast Recycling Council (NERC) - https://nerc.org/
- Northeast Waste Management Officials' Association (NEWMOA) - www.newmoa.org/solidwaste/
- West Coast Climate and Materials Management Forum- https://westcoastclimateforum.com/ and https://westcoastclimateforum.com/cfpt/casestudies
- Oregon Department of Environmental Quality (OR DEQ) - www.oregon.gov/deq/mm/Pages/Consumption-based-GHG.aspx
- Zero Waste - www.cvswmd.org/zero-waste-at-home.html and www.cvswmd.org/zero-waste.html

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