

IN THE HOME

I pledge to:

- ✓ **Use Non-Toxic Cleaners:** Borax, vinegar, baking soda, salt, and lemon juice are just a few natural alternatives.
- ✓ **Check Efficiency Ratings:** Save up to 13% of your home's energy by switching to ENERGY STAR-rated appliances with smarter designs, like front-loading washers.
- ✓ **Use a Rain Barrel:** Recycle rainwater to water plants.



AT THE OFFICE

I pledge to:

- ✓ **Go Dark:** Shut down your computer – rather than putting it in “sleep” mode – when you leave each day.
- ✓ **Print Smart:** Think twice before printing. Go electronic when possible and print double-sided in black and white – rather than color – whenever possible.
- ✓ **Go Recycled:** Use 100% recycled content office paper for all printing needs.



SMART ENERGY USE

I pledge to:

- ✓ **Schedule an Audit:** Complete an online energy audit of your home and office to identify ways you can save energy.
- ✓ **Reduce Phantom Energy Use:** Turn off or unplug devices when not in use.
- ✓ **Go Renewable:** Install renewable energy systems or purchase renewable energy credits from your utility.



SMART CONSUMERISM

I pledge to:

- ✓ **BYOB:** Bring your own bag when shopping at grocery, retail, and other stores.
- ✓ **Simplify:** Embrace minimalism by reducing what you own and buy.
- ✓ **Take an Eco-Rest:** For one day (or hour) each week, stop consuming resources. Don't buy anything, use machines, turn on electronics, cook, or even answer your phone. (Enjoy!)



ADVOCACY & ACTIVISM

I pledge to:

- ✓ **Stay informed and VOTE!** It's your superpower. If you want a habitable planet to live on, you need to vote for it.
- ✓ **Speak Up:** Write a letter, email, or even tweet your legislators, newspaper editors, and big businesses and ask them what they're doing to protect our planet. Share their reply on social media to help spread the word.



SUSTAINABLE, RESILIENT

Rochester



✓ **do your part.**

**TAKE
THE
PLEDGE!**

Living Sustainably in Rochester

Kevin Bright
Energy and Sustainability Director
DMC and City of Rochester
2/21/2021

Agenda

- How to start?
- Sustainability at Home
- ...at work
- ...getting around
- [Take the sustainability pledge!](#)

Where to start?

Benchmark: Carbon Footprint Analysis

Carbon Footprint

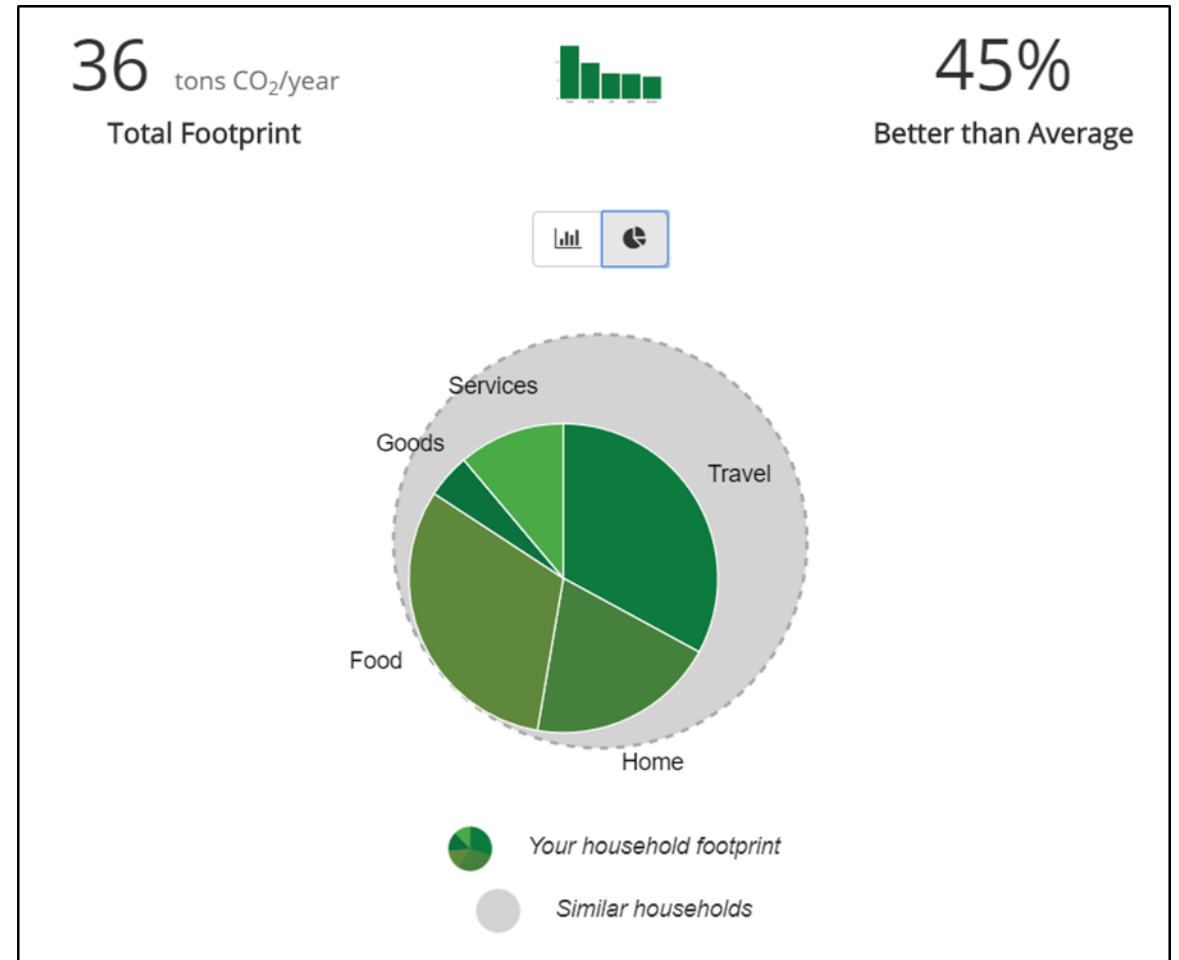
- Definition: The amount of carbon dioxide and other carbon compounds emitted due to the consumption of fossil fuels by a person, group, entity, etc.
- Associated with the following term:
 - Embodied energy – the sum of all of the energy required to produce any goods and services, considered as if that energy was embodied in the product itself
- Resource: <https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/>

Who has completed a footprint in the past?

What was surprising to you?

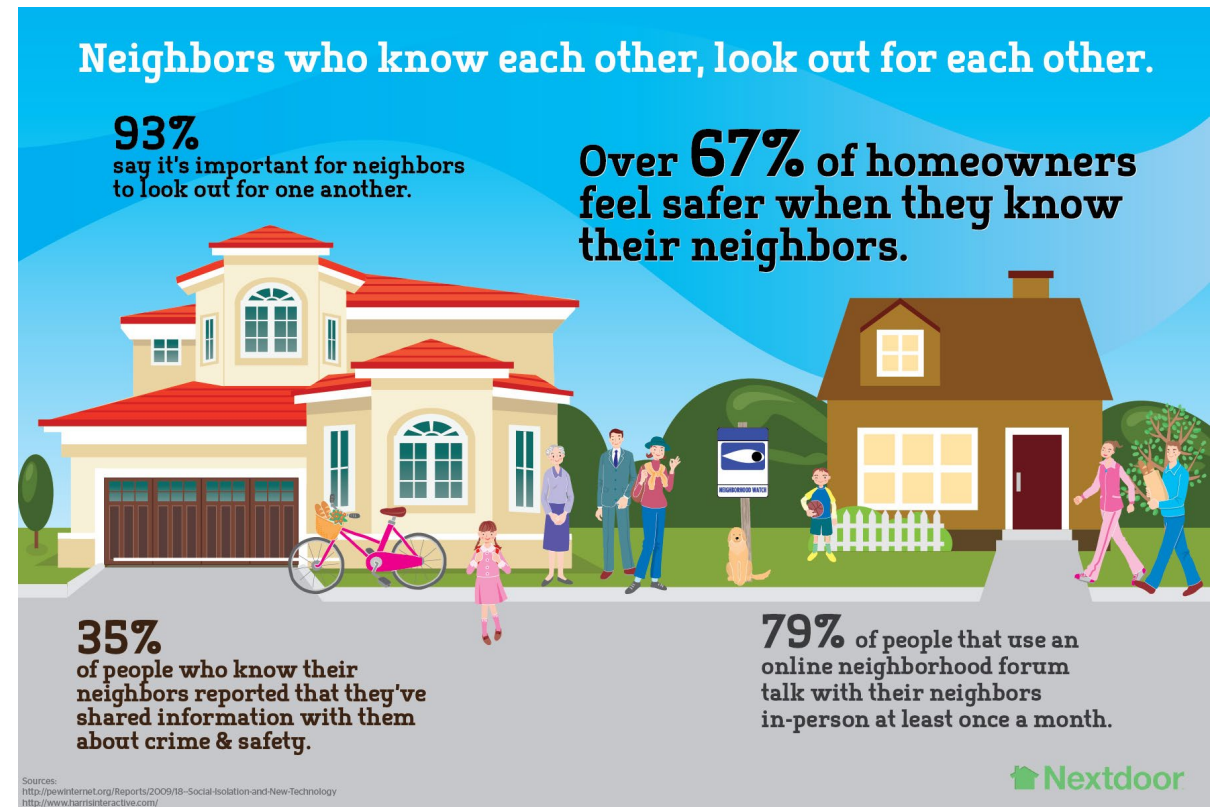
Carbon Footprint Report Out

- #1 Emitter?
 - TRAVEL!
- #2 Emitter?
 - It depends...
 - Diet, home energy needs, amount of goods purchased, or shopping can move results



What are some ways we can make our households more resilient?

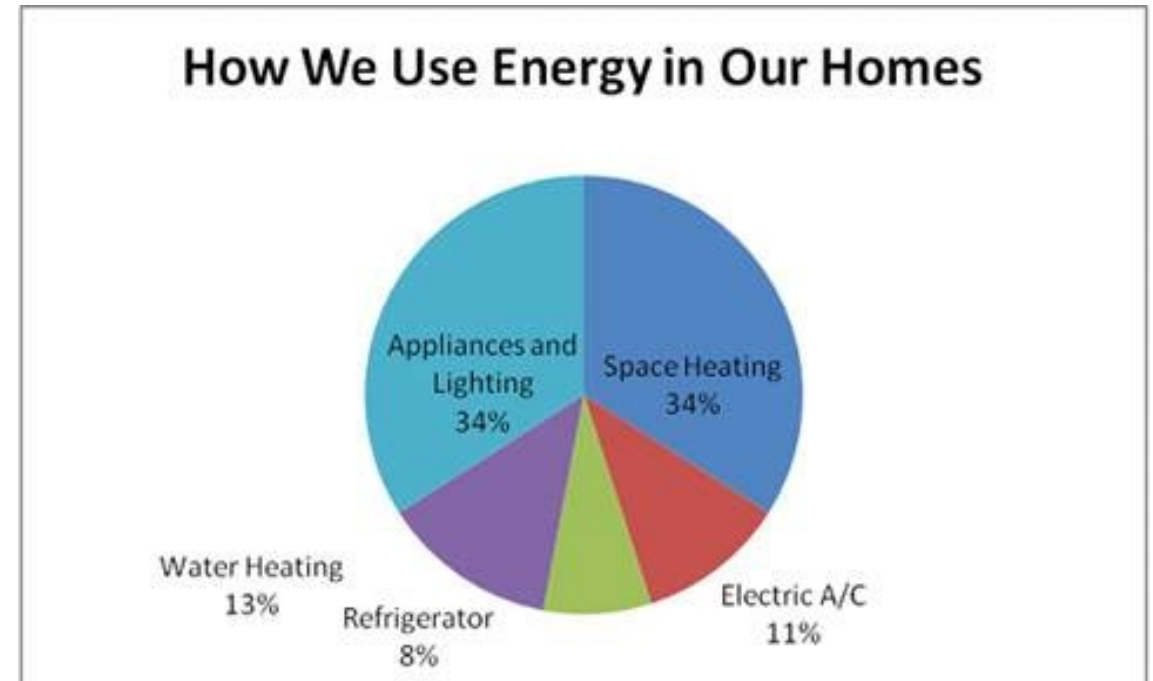
- Transportation?
- Food – specifically our diet?
- Home energy needs?
- Purchase of goods?



Energy Use at Home

Home Energy Consumption

- Measure
 - ENERGY STAR Portfolio Manager
 - Home Energy Audit
- Quick and Easy Items:
 - [Home energy audit from RPU](#)



ENERGY SAVER\$: Tips on Saving Energy & Money at Home

Home Energy Improvements

- Lighting
- Heating and cooling control
- Domestic water heating
- Water consumption
- Appliances
- Insulation



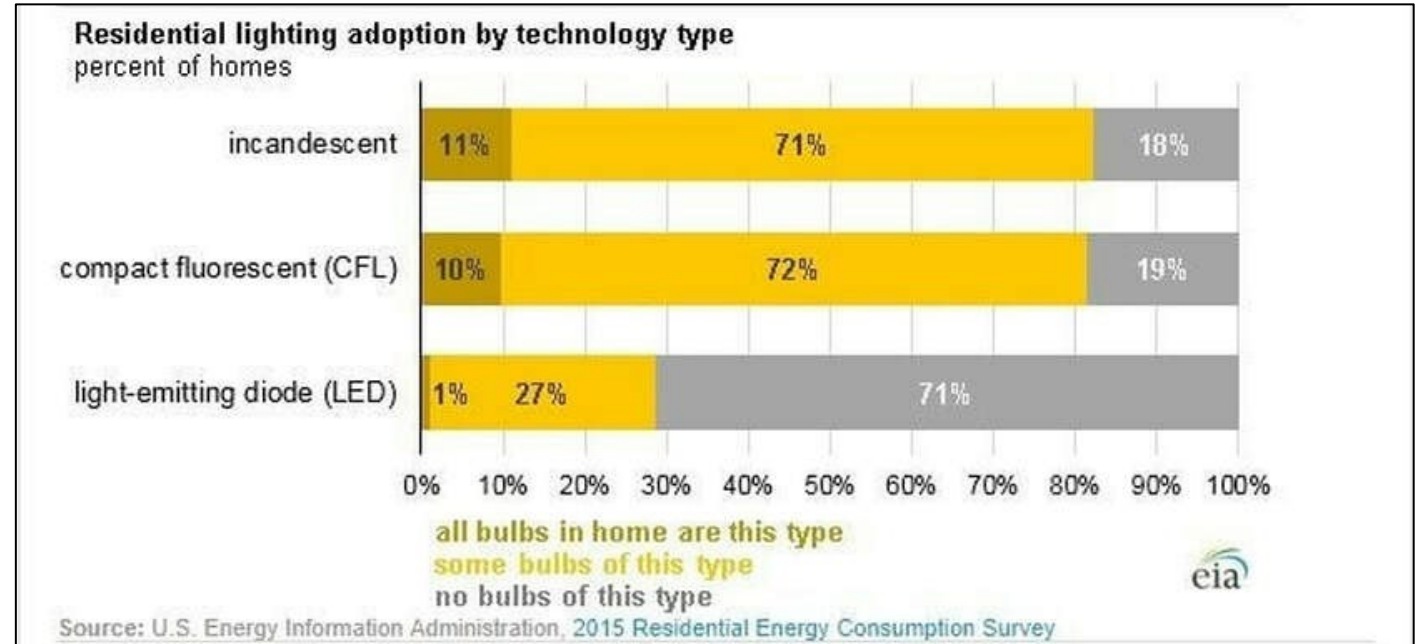
Home Energy Improvements

- Lighting

- [Lamp shape](#)
- Color temperature
- Dimmable or not?

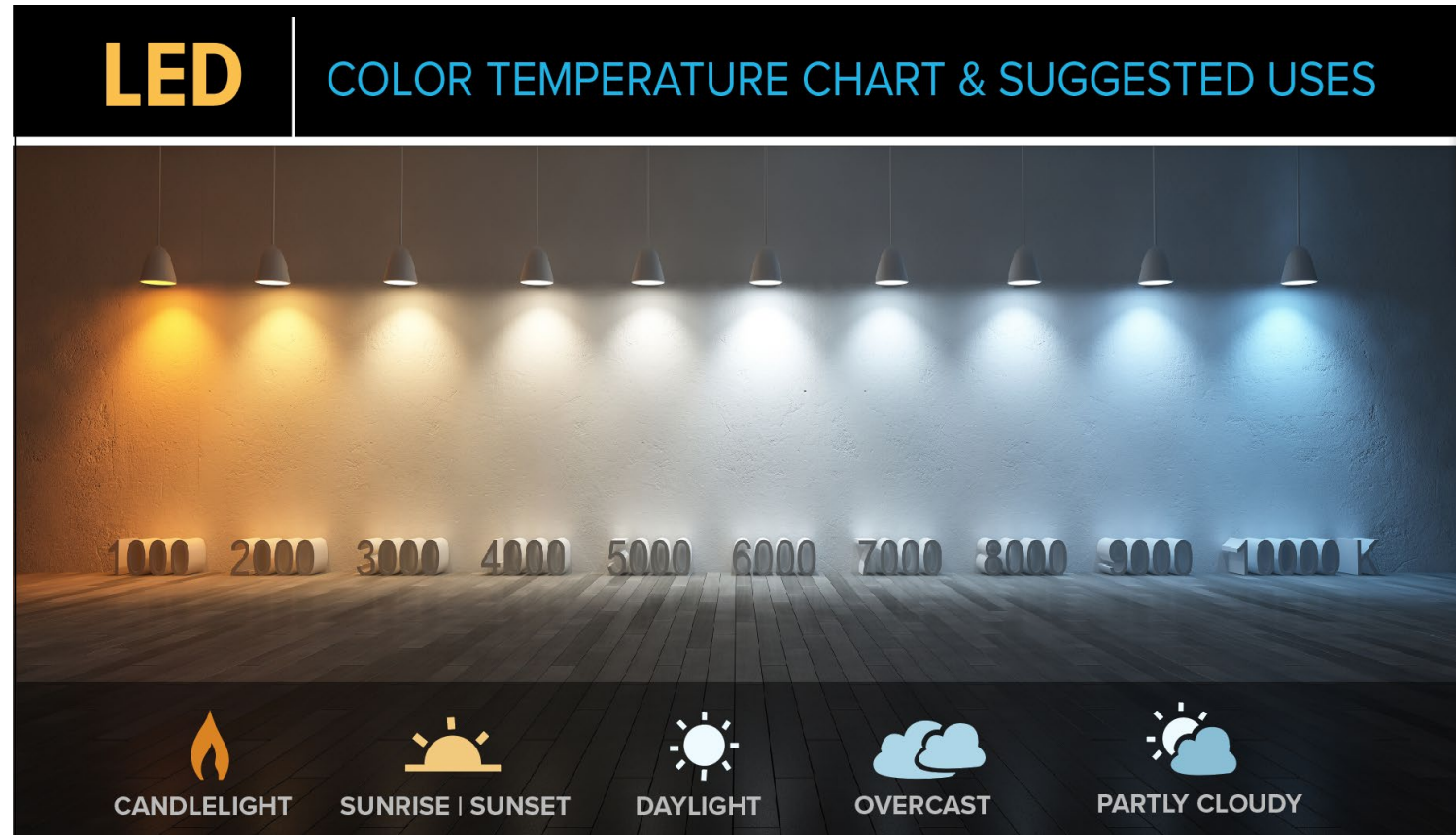
- Resources:

- [RPU Lighting Incentives](#)
- [ENERGY STAR light ratings](#)



Home Energy Improvements

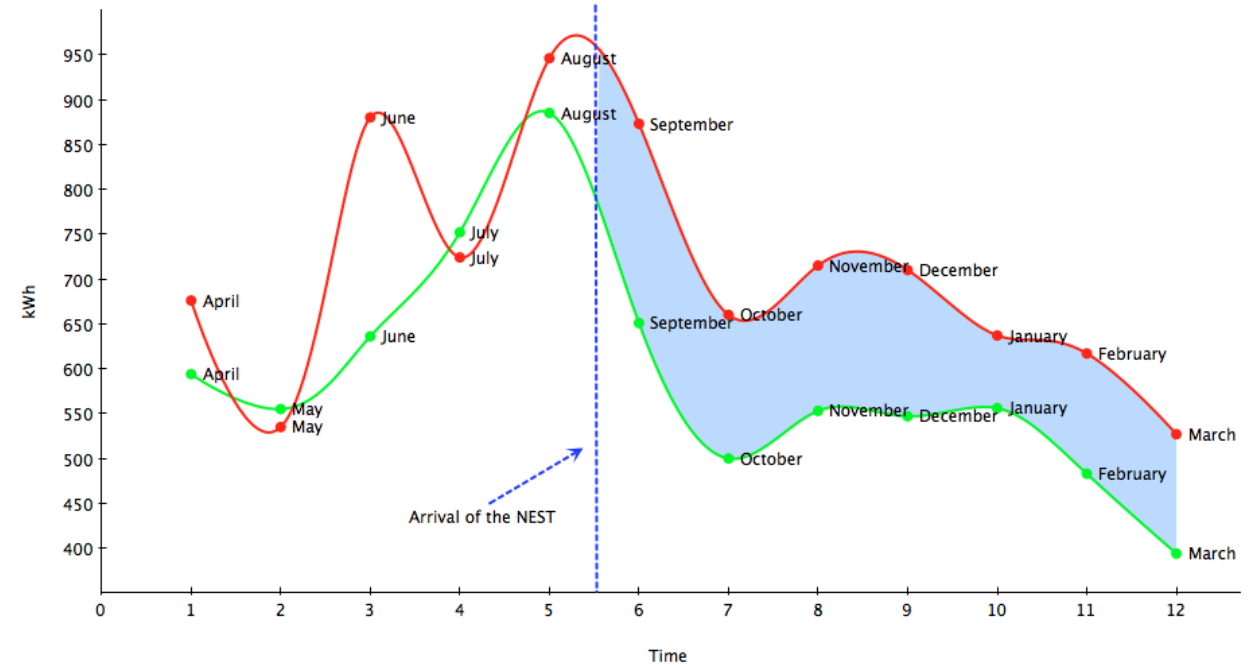
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Source: McPherson Architecture

Home Energy Improvements

- Heating and Cooling Control
 - [ENERGY STAR rated](#)
 - Programmable control
 - Current thermostat battery-powered or line voltage?
 - What does it control? – Furnace and air conditioner, heat pump, etc



Source: Energy Institute at Haas

Home Energy Improvements

- Domestic Hot Water
 - Confirm water temperature setting on heater
 - Too hot or too cold?

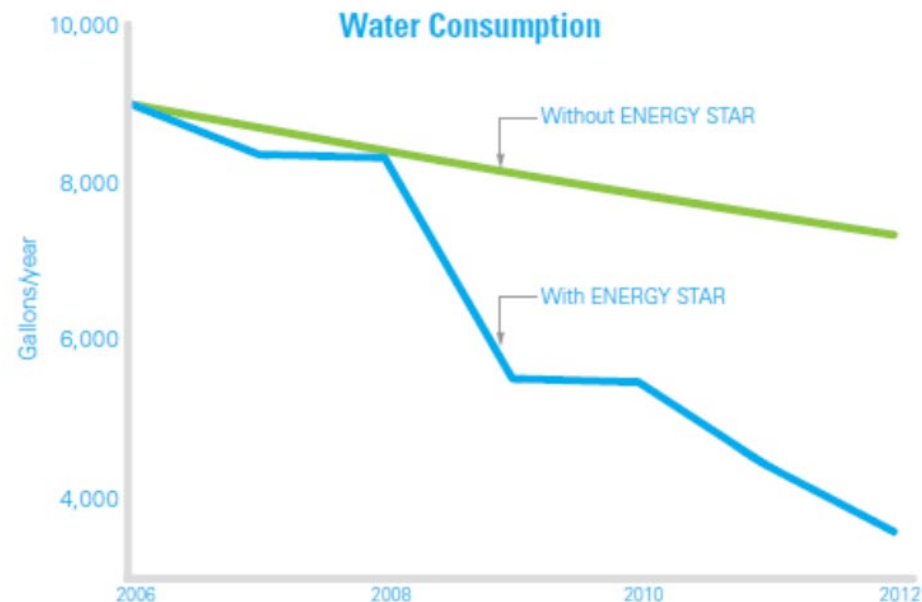
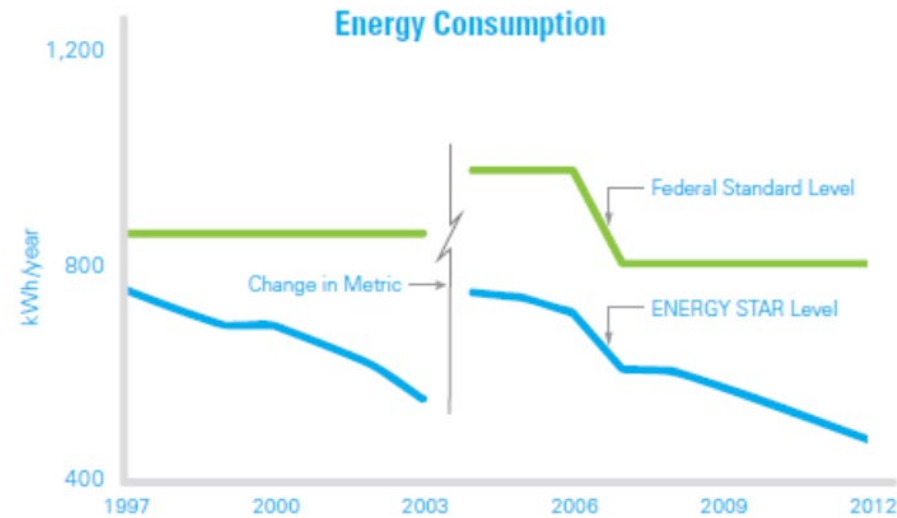


Source: CNET

Home Energy Improvements

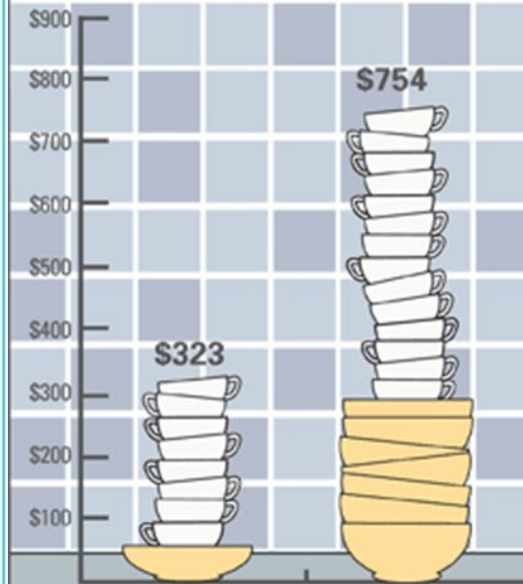
- Appliances
 - Dishwasher
 - Refrigerator
 - Freezer
 - Clothes Waster
- Plug loads
 - Entertainment systems
 - [Smart Power Strips](#)

The ENERGY STAR Difference: A Typical Clothes Washer*



Today, an ENERGY STAR clothes washer uses about 70 percent less energy and 75 percent less water than a standard washer used 20 years ago.
*3.46 cu ft., electric water heating, not including dryer energy.

LIFETIME OPERATING COSTS* ENERGY STAR® QUALIFIED DISHWASHER vs. HAND WASHING



Hand washing your dishes costs \$431 more in energy and water than using an ENERGY STAR qualified dishwasher.

LEGEND



*Assumes average dishwasher lifetime of ten years.

Home Energy Improvements

- Water Consumption
 - Showerhead (1.5 gpm or less)
 - Kitchen sink aerator (1.5 gpm or less)
 - Bathroom sink aerator (0.5 gpm or less)
 - WaterSense Rated fixtures – toilets
 - Capture rainwater
 - Repair leaks
- Resources
 - [MERC free sink aerators, showerheads](#)
 - [Olmsted County Rain Barrel Installation instructions](#)

Save Money and Water with Low-Flow Fixtures and Appliances

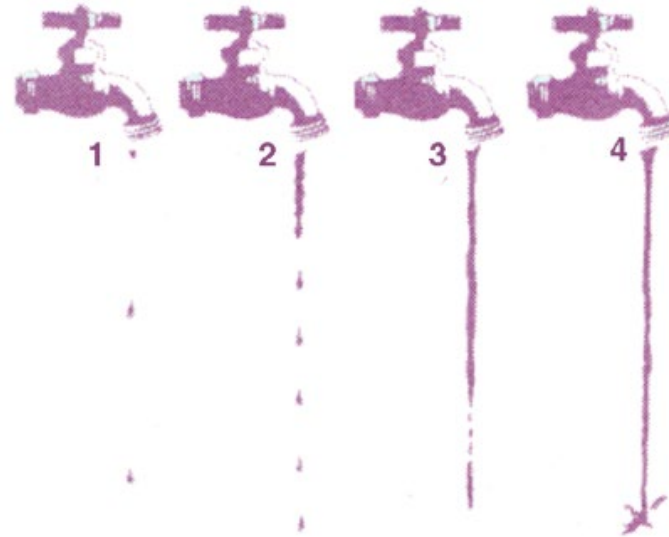
An average US family uses **127,000 gallons of water per year!** Low-flow appliances and fixtures can help reduce that number.



Source: Growplumbing.com

Repair Leaks

WATER WASTED IN ONE MONTH FROM LEAKS



gallons/month

1. a slow steady drip (100 drops a minute)	350
2. a fast drip	600
3. a small stream	2,000-2,700
4. a large stream	4,600

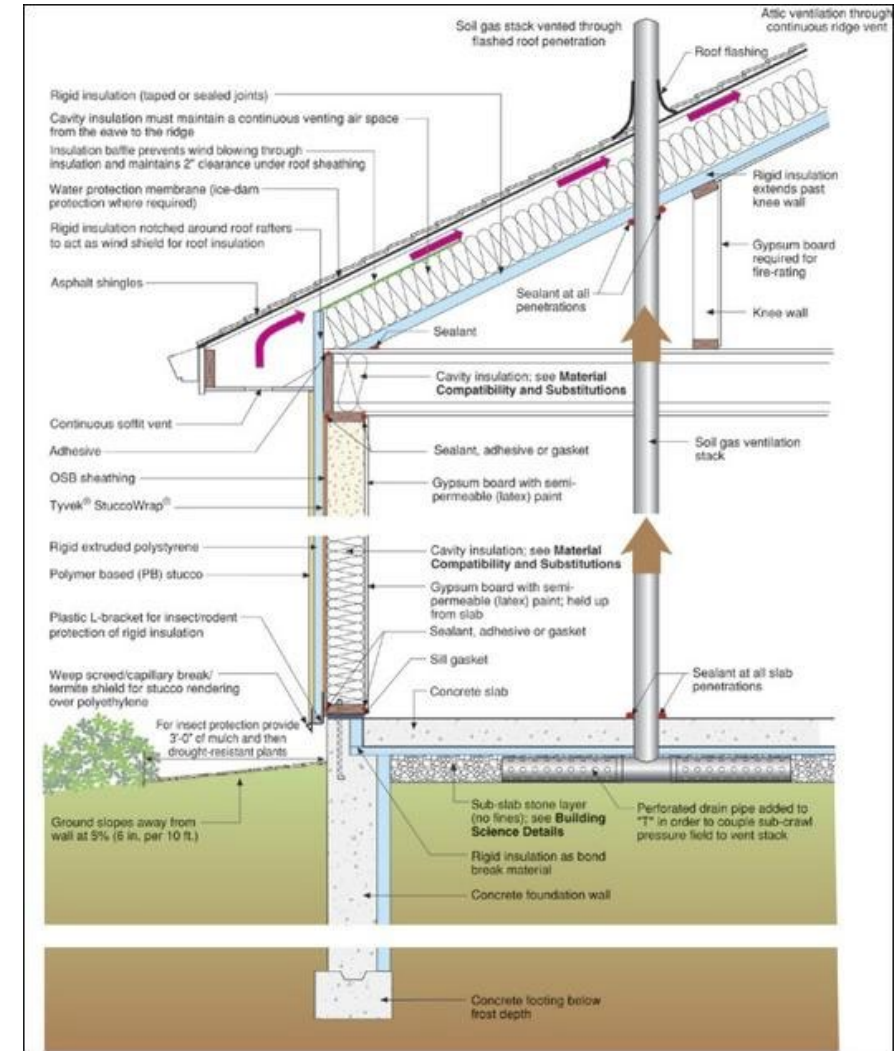
Home Energy Improvements

- Insulation

- Attic insulation -> R40
- Basement rim joist insulation -> R21
- Door Sweeps
- Door weather-stripping

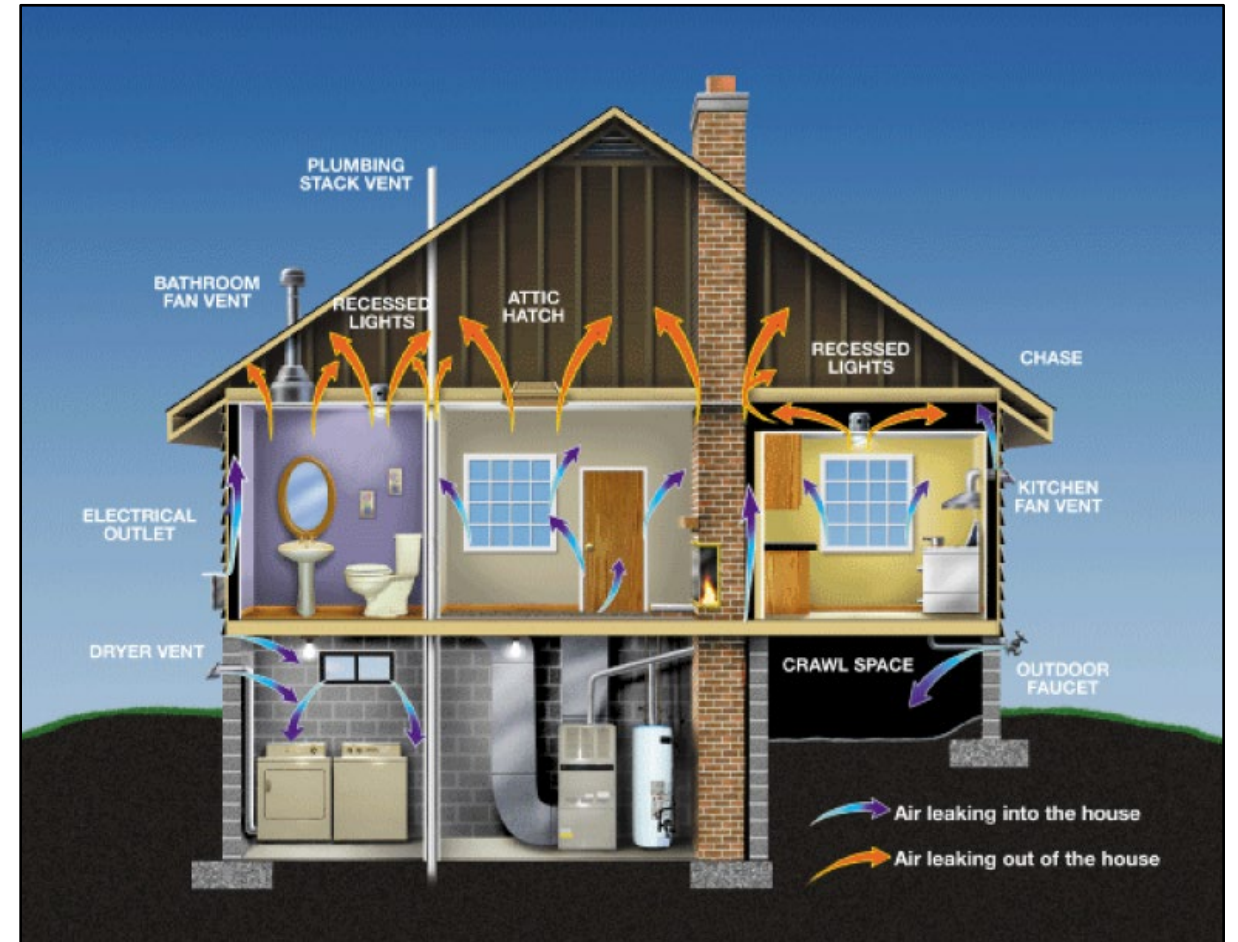
- Secondary Elements

- Duct insulation
- HW pipe and DHW pipe insulation



Home Energy Improvements

- Insulation
 - Limit air leakage!
 - ENERGY STAR: ‘Air leakage accounts for 25%-40% of the energy used for heating and cooling in a typical residence.’”



Source: ENERGY STAR

Renewable Energy Ideas

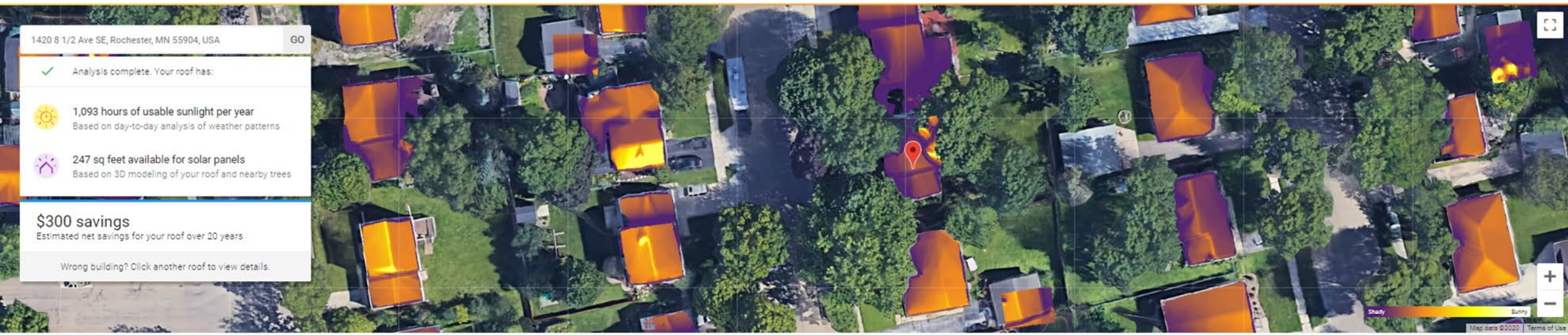
- [On-Site Solar](#)
 - Roof orientation
 - Shading of trees
 - Contact Solar vendor!
- [Purchase renewable energy credits](#)
- Community solar program

- Resources
 - [Minnesota Solar Suitability App](#)
 - [Contact a local solar vendor!](#)
 - [Google Project Sunroof](#)



Source: Clean Energy Project Builder

My House



Fine-tune your information to find out how much you could save.

<p>YOUR AVERAGE MONTHLY ELECTRIC BILL ⓘ</p> <p>We use your bill to estimate how much electricity you use based on typical utility rates in your area.</p> <p>\$90</p>	<p>YOUR RECOMMENDED SOLAR INSTALLATION SIZE ⓘ</p> <p>This size will cover about 42% of your electricity usage. Solar installations are sized in kilowatts (kW). <i>We think this is the largest size that can fit on your roof.</i></p> <p>3.5 kW (247 ft²)</p>
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Landscaping and Yard

- [Grow your own food!](#)
- Compost your organic waste
- Limit grass
- [Prioritize native and adapted plants and shrubs](#)
 - [Avoid invasive MN plant species](#)
- Resources:
 - [Backyard compost bin](#)
 - [Public Works – Lawns to Legumes – Workshop of 2/24](#)
 - [Itree Program – tree siting](#)
 - [ENERGY STAR Irrigation tool](#)



Native prairie garden adjacent to woodland edge, with foot path.

Image courtesy of Chan Mahanta, Wild Ones.

Sustainability and Food

Food Choice

- Environmental Choices

- Less meat
- Less dairy
- Organic
- There is no such thing as too many vegetables

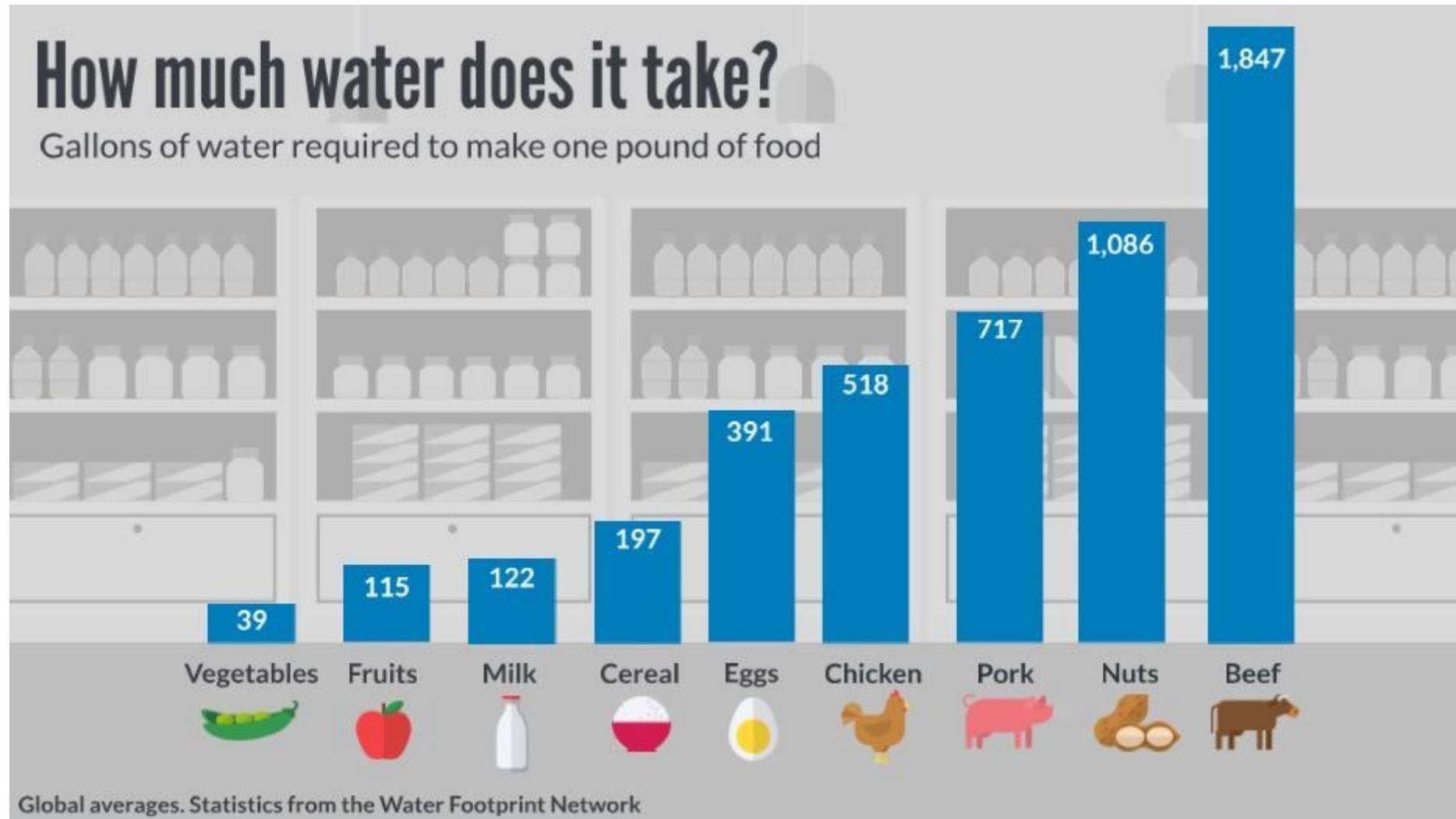
- Economic Choices

- Prioritize local farmers – [Farmer's Market](#)
- \$1 spent locally changes hands 7 times

Table 1: Food production conversion factors for energy, land, water and greenhouse gases

Food type	Energy MJ/unit	Land ha/unit	Water m ³ /unit	GHGs kgCO ₂ e/unit	Unit
Alcoholic beverages	5.18	0.000098	1.73	1.01	kg
Dairy products	6.55	0.000123	2.42	1.08	kg
Fish	72.73		1.13	3.55	kg
Fruit and vegetables	7.06	0.000067	2.12	1.38	kg
Grain, starches & derived products	16.44	0.000173	2.1	0.92	kg
Meat & meat products (excl. poultry)	78.82	0.001352	6.54	10.96	kg
Poultry meat& products	34.29	0.00064	2.41	5.76	kg
Eggs	26.04	0.000569	2.47	4.3	kg
Vegetable and animal oils and fats	33.15	0.002621	7.2	0.97	kg
Other food products (incl. sugar)	23.01	0.000157	1.86	5.44	kg

Water Footprint of Foods



Water Footprint of Meat



Sustainability at Work

Green Office Programs

- Waste Reduction
- Office Events
- Energy use in the office
- Purchasing habits
- Culture and learning
- Health and well-being



Source: Harvard Office for Sustainability

- Resources:
 - [Adapt Harvard's Green Office Program](#)

Getting Around Sustainably

Transportation Planning

- Accommodate multiple modes
- Densify urban core – reduces exposure of infrastructure
- Complete community design – access goods and services by foot or bike
- Roads, bridges, railway and runways are heavily exposed to climate impacts



Getting Around

- [Plan Your Commute](#)
 - Arrive Rochester – download the app
- [Consider biking in Rochester](#)
 - [Join a social ride with We Bike Rochester](#)
- [Rochester, MN Bus Route Map](#)
 - Other Rochester Public Transit info
- Parking downtown – use Parkmobile
- Mobility sharing
 - Lime Scooter
 - Bike share program
 - [Hourcar - Rochester](#)



Sustainable Purchasing

Sustainable Purchasing

- Reduce, reuse, recycle
 - Buy what you need
 - [Use Ecolabel certifications](#) – EPA.gov is a great resource!
 - Purchase reused...
 - [Restore Rochester](#)
 - Salvation Army, Once Upon a Child...
- Support local businesses whenever possible
 - [Farmers' Market](#)
- Speak with your dollar
 - Should reflect your values
 - Purchased product reflects demand, determines supply

Source: King County

01
Assess the Need



02
Look For a Contract



03
Use Ecolabels



04
Reduce Shipping Waste



05
Pay with P-Card



06
Disposal



You likely aren't alone on your sustainability journey...

- Use the internet and trusted sources
- Talk to people in town – neighbors, organizations, informal groups

How else can I plug into sustainability conversations locally?

1. [Green Drinks Rochester](#) – Last Thurs of month
2. [Sustainability Series](#) – 3rd Wed of month, 12-1 pm
3. [Sierra Club](#) – Rochester, MN Chapter
4. [Rochester Electric Vehicles](#) – Info and meeting group
5. [Community Education](#) – Sustainable Living

What else might help you get started?