

You and the Climate Crisis

Michael Kerfoot
1sunergysystemsLtd@gmail.com

What Can You Do?

Right Right here.

now.

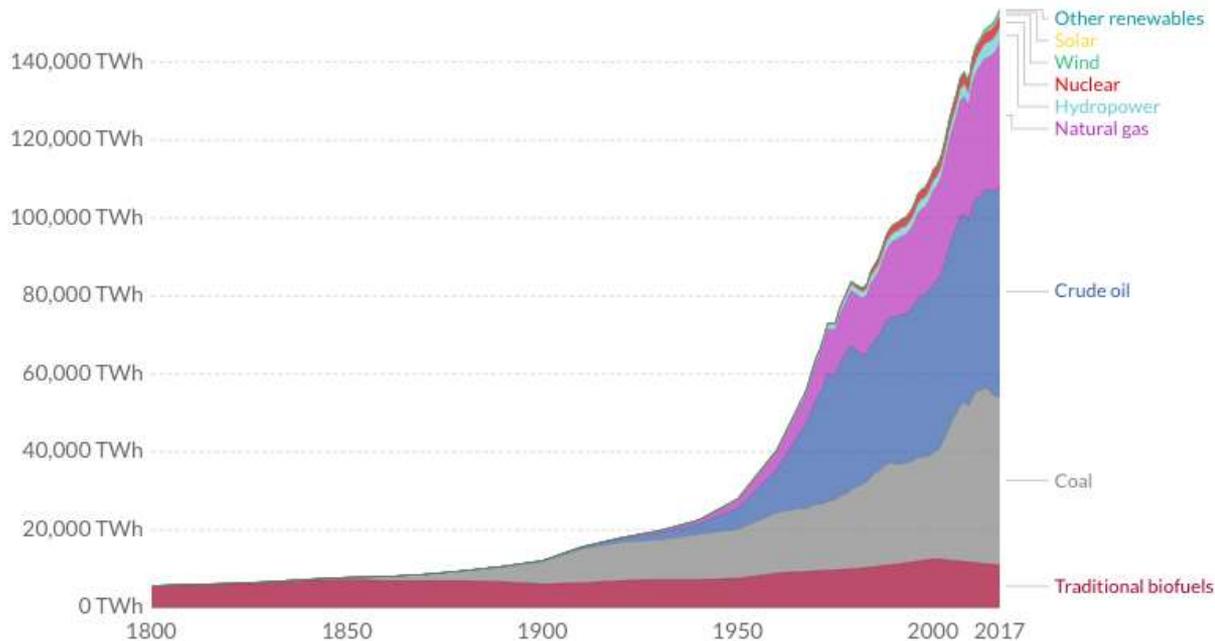
Mt. Insatiable

Maybe Trump is right
“Make America great
again.” If we could only
go back to a smaller
population and a more
modest lifestyle.

Global primary energy consumption

Global primary energy consumption, measured in terawatt-hours (TWh) per year. Here 'other renewables' are renewable technologies not including solar, wind, hydropower and traditional biofuels.

Our World
in Data



Source: Vaclav Smil (2017) and BP Statistical Review of World Energy

CC BY

Relative

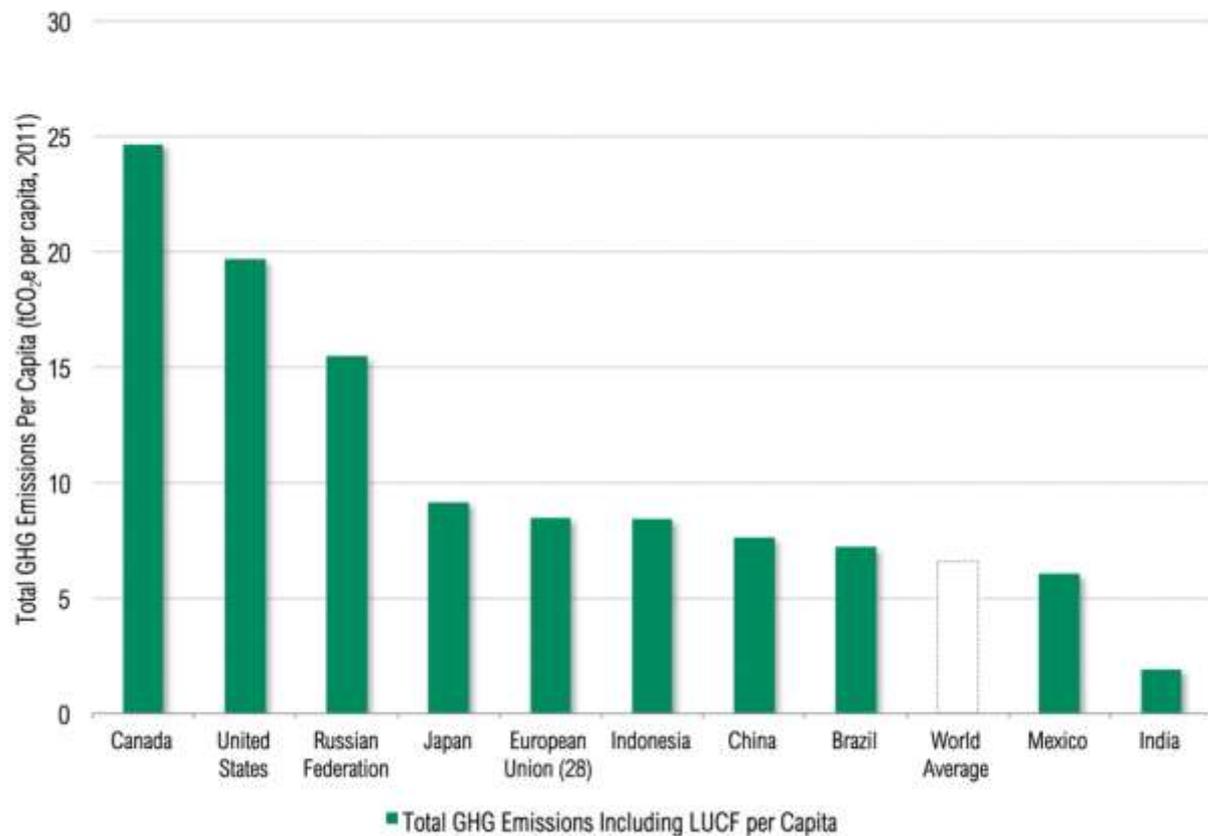
CHART

DATA

SOURCES



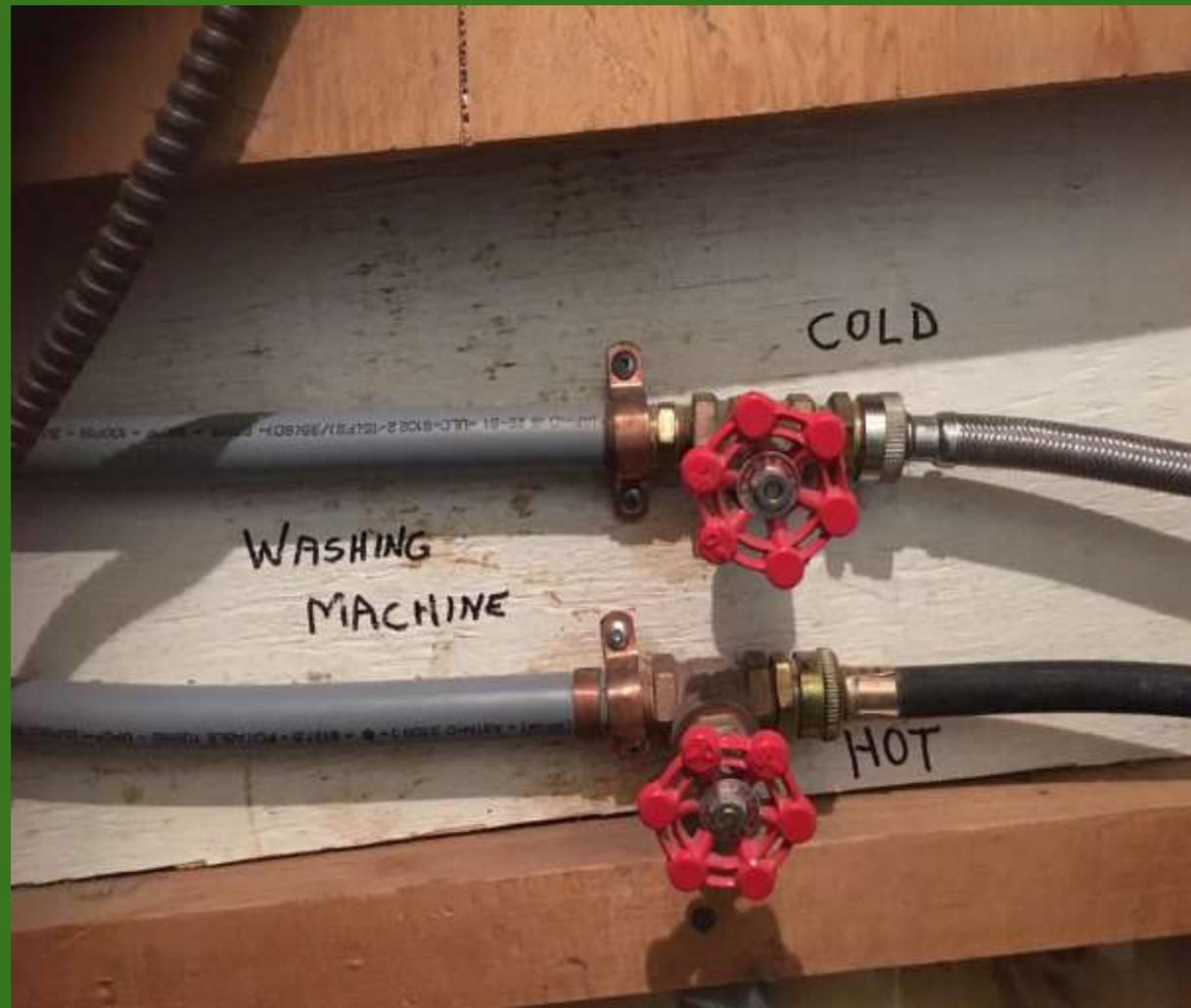
Per Capita Emissions for Top 10 Emitters





Washing Clothes

Front load washing machines can be very efficient in water use and spin dry at high rpm's to reduce drying energy.



But most of the energy to wash your clothes is used to heat the water. So simple - disconnect the hot water!

Cold Shoulder

Don't tell anyone but I haven't used warm water in the washer for, well, for ever. No one seems to notice. Do you? Only Tide knows for sure.



Drying clothes takes a lot of energy. In the summer outdoors works great.



Drying Room

Wintertime drying moves inside. Perhaps there is a special space that meets this need - such as the greenhouse area.



Now let's get cooking.
But wait a minute, do you
really want an open fire in
your house spewing all
those products of
combustion? Even with
the exhaust fan operating
you will have poor indoor
air quality.



Smooth Top

Probably a smooth topped electric is the most common. It's easy to clean but heating up the mass between the coils and the pot takes energy away from heating your supper.



Induction

Europe has used induction cooking for years and chefs consider it superior to gas. For quick cooking it's more efficient but you need special pots and the stove is expensive.



How Expensive?

When I say expensive I mean it - even when deeply discounted!

Slide in

30" Electric Slide in Range

- 26 3/4" D x 35 1/2" H x 31 1/4" W
- Large oven capacity at 4.6 cu. ft.
- Self Clean
- 1 year parts and labour warranty
- Fits in Any Freestanding Range Cutout

Clearance

\$3148

Was \$3149

Also Available

Description	Item #	Model #	Availability
30" Gas Slide In Range	631985	HG18054UC	7 days

Prices on additional colours may vary. Please see an associate for details.

Item # 487889 Model # HE18054C



Coil Top

An old fashioned electric coil is the least expensive and is generally as electrically efficient as any choice.



Refrigerator

Ice cubes, crushed ice, cold water and more bells and whistles come with an energy cost. Top freezer is more efficient.



Refrigerator

The simpler, the more efficient - this one is 318 kwh/yr. And the steel door is easier to use magnets to show off your kids. Usually a separate small freezer close by works better.



Lighting

The hotter the bulb, the less efficient. This PL is efficient, but still too hot to touch. Incandescents and halogens will burn your toes off.



LED's

No problem
holding this bulb.



Fluorescent

Where appropriate 'old fashioned' fluorescent tubes are the most efficient. Not really 'old fashioned' the new T-8's and T-5's smaller diameter tubes serve well in big spaces.



No Gas Pains

If your house can be efficient enough you can avoid connecting to the gas line and go all electric. Our future has to electrify everything to get off fossil fuels.



Electric Heat

Wall inset electric resistance fan heaters in bathrooms and bedrooms will give you good control of warmth if the house is efficient.



Heat Pump

A mini-split ductless heat pump can take one unit of electricity and give you two or three units of heat, depending upon outdoor temperatures. But your house needs to be efficient.



PWF

Preserved wood foundations are dramatically more energy efficient and reduce embodied energy.

Cement manufacture represents about 8% of global GHG emissions.

Avoid it.



Well Insulated Walls

Ordinary construction doesn't allow enough insulation and has too much thermal bridging. R42 is a good sweater for your house.



Solar Electricity

My shop produces more electricity each month than it uses. A vertical mounting of the panels is not the most efficient but it's fun to look at them every day.



PV's

5.5 Kw system.

Doesn't that look cool -
your own electrical
generating plant that
will work for you for
decades to come.



PV Inverter

The inverter on the right converts direct current from the panels into grid power to be used on site or sent to my neighbour's.



Electric Bill

I pay for the grid to give me power and they pay for what I give them. And you can see that on the generation portion of the bill they owe me. Sweet.



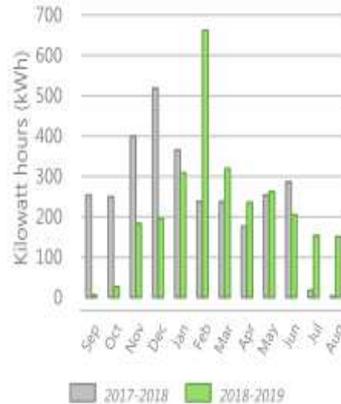
ALBERTA CO-OPERATIVE ENERGY

Michael Kerfoot

Electricity

Site ID: 0040516500008

Historical usage



General Inquiries 1-888-865-8750

info@ACEnergy.ca

Page 3 of 3

415 RAILWAY AVE CREMONA

Meter number: 00000000002800128

Current measured usage and demand (if applicable) (provided by FortisAlberta Inc.)

Start meter reading (s)	End meter reading (s)	Conv. factor	Usage (kWh)	Meas. dmd.	Billed demand
Aug 1/19	632 A	Aug 31/19 783 A	1	151.00	3,048 KW
					3.05 KW

Current measured micro-generation exported

Start meter reading (s)	End meter reading (s)	Conv. factor	Exports (kWh)
Aug 2/19	962 A	Sep 1/19 1358 A	1
			396

Retailer charges - August 1 to August 31, 2019

Retailer charges (before GST) \$ (30.25)

Fixed price electricity charges

151 kWh X \$0.15/kWh = 22.65

Billing administration fee 6.50

Fixed price micro-generation credits

396 kWh X \$-0.15/kWh = (59.40)

Distributor charges - August 1 to August 31, 2019

(distribution services provided by FortisAlberta Inc.)

Balancing pool consumer allocation 0.46

Local access fee (Cremona) 6.78

Transmission charges 24.92

Demand charge 22.75

Variable charges and rider(s) 2.17

Distribution charges 45.36

Demand charge 42.22

Variable charges and rider(s) 3.14

Total retailer and distributor charges for the current billing period (before GST) \$ 47.27

Household RW

The first water coming off the roof is dirty. A first flush device collects this water and rejects it. The rest is directed to the cistern.



RW Cistern

A nice deck with
23,000 liters of
water under it.



Rainwater

Your garden will prefer rainwater and you will save a precious resource.



Shower

If you enclose the shower you will have a more enjoyable shower at a lower temperature which equals less energy.



Save \$ with 2 Faucets

With both hot & cold
faucets you control
temperature and flow.



Two Faucets

Most of the time cold water is fine. A single lever faucet is usually operated to give you both and waste energy. With two faucets you decide what you really want.



Dual Flush Toilets

1.6 liters to flush a pee
rather than 22 saves a lot
of water.



Composting Tank & GW Heat Xgr

A modern compost toilet
- no odour, no water,
recovers nutrients.

The pipe on the right
recovers heat from the
waste shower water.



Shower Heat Exchanger

The warm shower water going in the drain flows down the outside pipe while the cold supply water flows up the inside pipe. As they flow past each other the cold supply water is warmed and will thus take less energy to heat up.



Wild Yard

No water, no mowing -
but a home for insects,
birds, mammals. What
do you ever use a front
yard for anyway?



Passive Solar

Triple glazed high SHGC windows on the south welcome the sun.

For a gas car the Honda Fit gets 5.0 liters per 100 km (56 mpg). And I can transport 8' 2x4's!

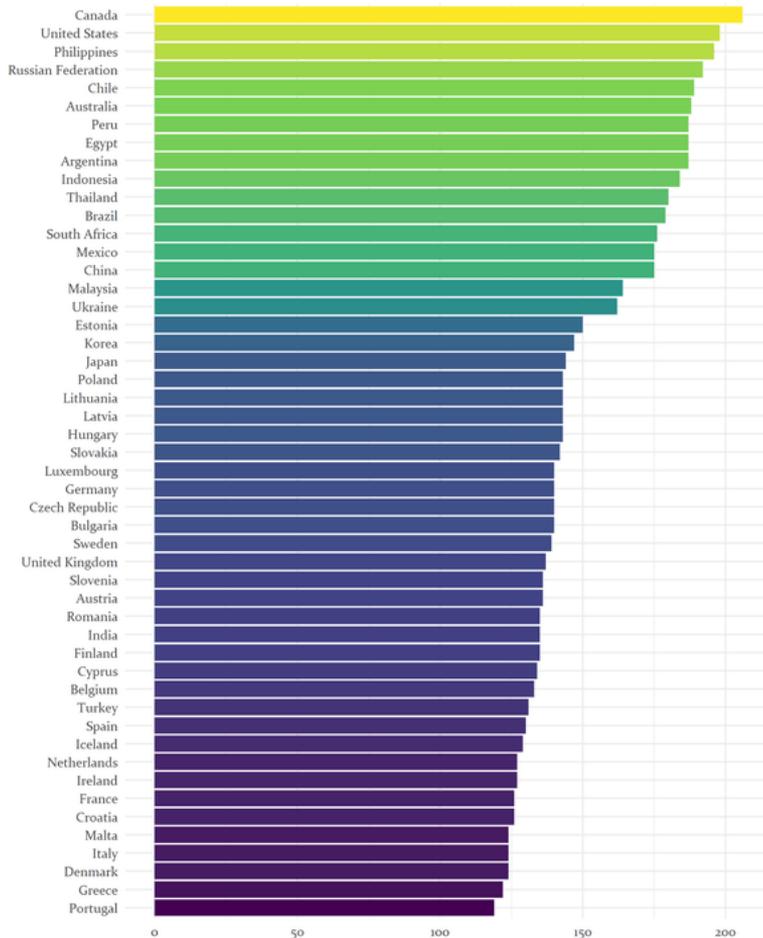


Vehicle Efficiency

Our love affair with trucks and big SUV's is driving us over the climate cliff.

How CLEAN are our vehicles?

Average grams CO₂ per km driven



Cold Starting

Synthetic oil reduces having to heat the engine block. If very cold then use a timer for a couple hours of heating.



EV

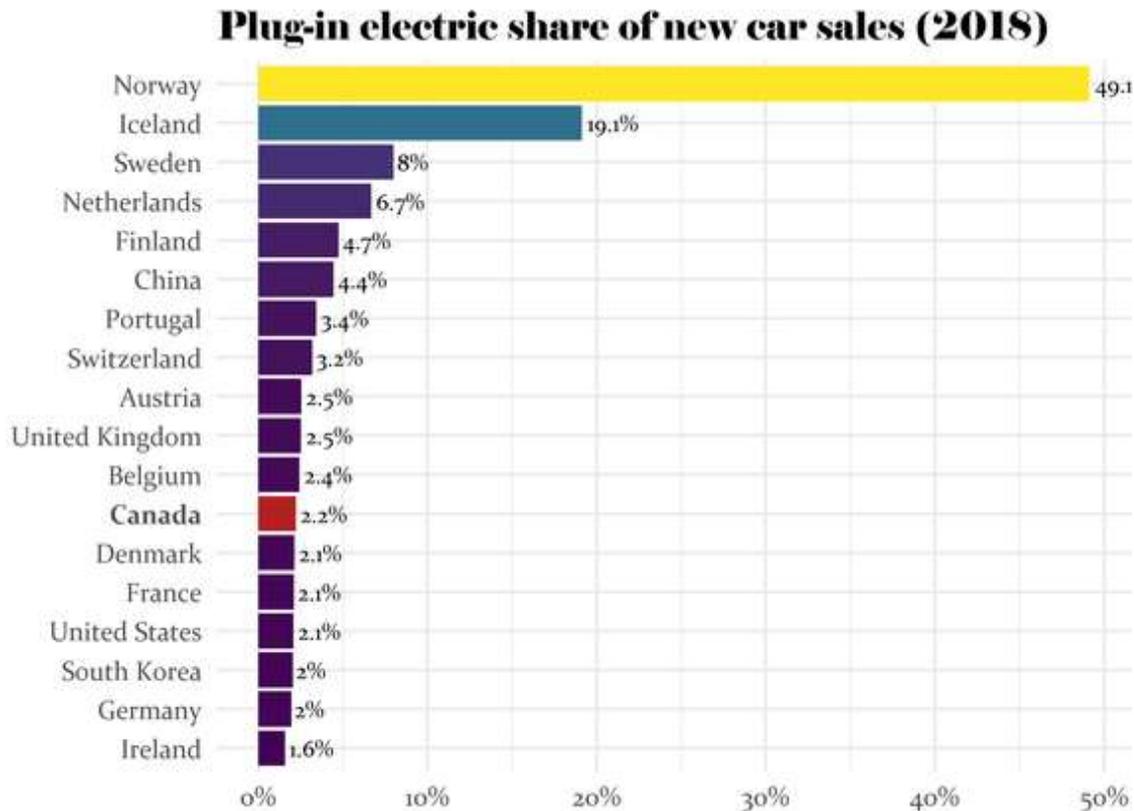
This Tesla model S has
230,000 km - no gas, no
maintenance, 96%
battery.

If you drive a lot an EV is
the cheapest car you can
drive.



Does Anyone Want an EV?

More people want an EV than are produced. Given that the biggest use of oil is transportation it might be time to learn the phrase “stranded assets”.



Data source: Statista.com, ACEA, CAAM, InsideEVs, KAIDA

Bikes

Bicycle Bill is the most efficient transport machine. Put coffee in the fuel tank and off he goes.



Public Transit

Electrified public transit is an ideal option if it takes you where you want to go.



Food

The more plant based
your diet the less oil
based it is. Diet impacts
climate big time.



MMMM!

Fart said the cow.

Smart said the plant



Compost

Composting need not be complicated. I have 2 holes - the one on the right is being filled, the one on the left is decomposing and ready for the garden. It takes about a year and a half to fill a hole. It's also a bird feeder!



Local Food

If you like gardening grow your own. If you like hens find someone to take any roosters.



Clothing

We less likely wear clothes out as we get worn out from wearing the clothes we have. Give them a second life.



2nd Life Clothing

Now try someone else's on for awhile.



Investment

Align your money with your beliefs and you will sleep better and probably make more money.

Dump fossil fuels and welcome renewables, efficiency, EV's, storage....

Welcome a better tomorrow.

Fossil Fuel Divestment Movement Exceeds \$8 Trillion



December 18th, 2018 by [Steve Hanley](#)

Small is Beautiful

A small space takes less energy to heat, less material energy to build, accumulates less stuff. More time for the planet, more time for you.



Slow Down

Internet shopping is generally energy efficient but it's "the last mile" that takes much of the energy.

Asking for next day delivery is much less efficient. 'Prime.' is a crime to the climate



Population

The biggest driver of our climate crisis is the planet's burgeoning population. Since it's a sacred cow we won't talk about it though.



Smaller Feet

Everything we do leaves a footprint. Let's walk gently upon the earth and learn to reduce our impact.



What's Your Shoe Size?

What's the energy cost of heating your home, driving your car, taking a flight, going to the restaurant,...? Figure it out and you can buy carbon offsets to support projects that help to reduce some of your carbon.

Welcome House Flights Car Motorbike Bus & Rail **Secondary** Results

Secondary carbon footprint calculator

Please enter your amount of spend for each category below, and then press the Estimate button to estimate your secondary carbon footprint

Choose your currency:

Food and drink products	<input type="text" value="for a medium meat eater"/>	\$ <input type="text"/>	<input type="text" value="per year"/>
Pharmaceuticals		\$ <input type="text"/>	<input type="text" value="per year"/>
Clothes, textiles and shoes		\$ <input type="text"/>	<input type="text" value="per year"/>
Paper based products (e.g. books, magazines, newspapers)		\$ <input type="text"/>	<input type="text" value="per year"/>
Computers and IT equipment		\$ <input type="text"/>	<input type="text" value="per year"/>
Television, radio and phone (equipment)		\$ <input type="text"/>	<input type="text" value="per year"/>
Motor vehicles (not including fuel costs)		\$ <input type="text"/>	<input type="text" value="per year"/>
Furniture and other manufactured goods		\$ <input type="text"/>	<input type="text" value="per year"/>
Hotels, restaurants, and pubs etc.		\$ <input type="text"/>	<input type="text" value="per year"/>
Telephone, mobile/cell phone call costs		\$ <input type="text"/>	<input type="text" value="per year"/>
Banking and finance (mortgage and loan interest payments)		\$ <input type="text"/>	<input type="text" value="per year"/>
Insurance		\$ <input type="text"/>	<input type="text" value="per year"/>
Education		\$ <input type="text"/>	<input type="text" value="per year"/>
Recreational, cultural and sporting activities		\$ <input type="text"/>	<input type="text" value="per year"/>

Estimate Secondary Footprint

Total Secondary Footprint = 0.00 tonnes of CO₂e **Offset Now**

For more information on this Secondary footprint tab, please see our [Calculator FAQ page](#)

Gifting

The Drawdown Project suggests that women's education and maternal health care projects have a major impact on reducing climate impacts. Consider this when reviewing your charity gifting.



Activism

Talking to your MLA/MP, writing letters, talking to strangers and taking a stand on the climate crisis is very important. Yes, it is hard, but we need to make a stretch for our children's future.



Vote for the Climate

Candidates must know that people will vote for the climate. All your great efforts can be reinforced and expanded many fold with supportive policies and regulation.



The War Room

For your mental health and fun work with others.

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.” - Margaret Mead



You are Powerful.

You can help the world.

Right here. Right now.