

Welcome to the Salt Spring One Tonne Challenge. Global climate change and our individual contributions to greenhouse gas (GHG) emissions are the cause of ever-increasing average global temperatures and associated severe weather events. It is up to each one of us to do what we can to reduce our use of fossil fuel—the source of most of our GHG emissions. Although our individual reductions may be small, together we CAN make a difference.

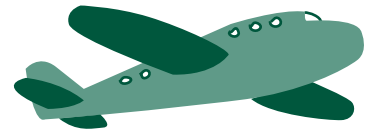
How big is a tonne of Greenhouse Gas (GHG)?

A: a tonne of GHG would fill a very large (4,000 sq foot) house.



The Salt Spring One Tonne Challenge

Kit

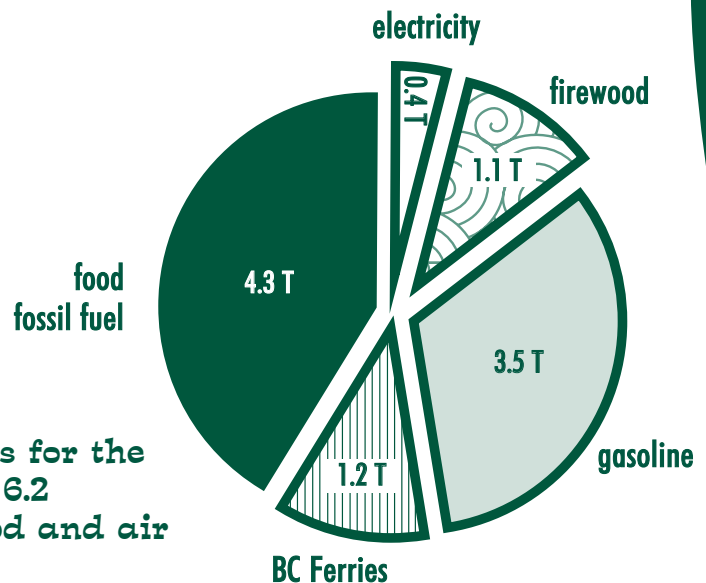


Let's get going!

This kit suggests a number of ways to reduce GHG emissions. Pick the ones that fit your circumstances, or be creative.

1. Follow the instructions.
2. Complete the worksheets.
3. Return the completed summary sheet.

Your name will automatically be entered for our super surprise-prize draw. Following through on your commitment is key. Post the completed sheets on the refrigerator or some other obvious place, as a reminder of what you plan to achieve. The idea is to find out how much GHG you currently produce in a year, and commit to reducing it.



Estimated annual GHG emissions for the average Salt Spring Islander is 6.2 Tonnes. (GHG emissions from food and air travel not included.)

Need help or more information? Contact the Earth Festival Society at 537-2616 or www.saltspring-onetonnechallenge.org.

The Salt Spring One Tonne Challenge is coordinated by the Earth Festival Society, with the help of the Salt Spring Island Conservancy and Island Natural Growers. Our sponsors include Environment Canada, the Islands Trust, the Capital Regional District, and VanCity Credit Union. The One Tonne Challenge is part of the Salt Spring Community Energy Strategy.

The Earth Festival Society was established in 1997 to provide people with information and education, by means of public events, workshops and demonstrations, about environmentally sustainable practices and technologies, including organic food production, renewable energy and energy efficiency, and green building technologies.

Salt Spring One Tonne Challenge

Automobile Calculator

There are over 7,600 cars, pick-up trucks, mini-vans and SUVs registered on Salt Spring, each one producing an estimated average of 4.4 tonnes of GHG emissions each year, or 3.5 tonnes for every man, woman and child living here. Our cars also produce large quantities of poisonous carbon monoxide and smog-creating volatile organic compounds and nitrous oxides. Cars are expensive to own and operate, and can make walking and cycling on the main roads hazardous. The good news: it is possible to reduce automobile emissions by changing our driving habits!

Step 1

Do not drive alone. The simplest way to reduce your GHG emissions is to make sure there are always at least two people in the car.

Step 2

Practice car-free days. Leave the car at home one or two (or more) days a week. Ride with a neighbour, walk, cycle, or just stay home.

Step 3

Maximize vehicle performance. Make sure your vehicle is getting the best possible fuel consumption. (See below.)

Contact

Salt Spring-Victoria commuter van pool: www.ride-share.com

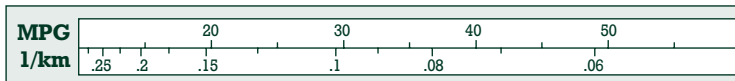
Calculate your current automobile GHG emissions

How fuel efficient is your car?

Older trucks, mini-vans, or SUVs: 0.14 litres per km
Newer trucks, mini-vans, or SUVs: 0.12 litres per km

Older cars: 0.10 litres per km
Newer cars: 0.08 litres per km

OR use your car's actual fuel consumption rate.
(convert miles per gallon to litres per km.)



OR select 'Find and compare vehicles' at www.oeenrcan.gc.ca/vehicles

Example: 0.0026 tonnes per litre x 15000 km per year x 0.10 litres per km for older car = 3.9 tonnes

Auto 1 0.0026 tonnes per litre x _____ km per year x _____ litres per km = T **1**

Auto 2 0.0026 tonnes per litre x _____ km per year x _____ litres per km = T **2**

Total automobile GHG emissions (add boxes **1** + **2**) = T **3**

How much can you reduce your automobile GHG emissions?

Check tire pressures and get car serviced on a regular basis (5%) Total (box **3**) _____ T x 0.05 = T **4**

Eliminate one trip in five by staying home, walking or cycling (20%) Total **3** _____ T x 0.2 = T **5**

Eliminate one trip in five by carpooling or ride-sharing (10%) Total **3** _____ T x 0.1 = T **6**

Get more fuel-efficient car: savings from 10% to 50% or more!
Total **3** (for auto being replaced) _____ T x $\frac{\text{(litres/100 km new)}}{\text{(litres/100 km original)}}$ = T **7**

Other: _____ = T **8**

Total annual household automobile GHG savings (add boxes **4** + **5** + **6** + **7** + **8**) = T **9**

The average Salt Spring home uses about 16,400 kWh of electricity each year, with a large proportion of homes heating with electricity. This represents about 0.7 T of GHG emissions per household, or 0.4 T per person. BC generates about 90% of its electricity from hydropower sources with few emissions of GHGs. But the remainder of our electricity comes from natural gas, oil and imports of coal-fired electricity, all of which produce emissions. Each time we switch off a light on Salt Spring, the electricity savings displace fossil-fuel generated electricity. Thus, electricity savings in our homes can substantially reduce GHG emissions.

Salt Spring One Tonne Challenge

Home Energy Calculator

Many homes on Salt Spring are partly heated with wood, which contributes about 2.1 T of GHG emissions per household, or 1.1 T per person. Woodstoves and fireplaces produce methane, which is a potent GHG. (Carbon dioxide emissions are offset by regrowth). Unless the firewood is very dry and the appliance highly efficient, wood-burning also creates air pollution such as fine particulate matter.

If you are planning major changes to your home—an addition, new heating system, or window replacements—an *EnerGuide for Houses* assessment will provide an energy analysis, and recommendations for energy improvements based on the 'house as a system' approach.

Contact

EnerGuide for Houses:
537-2616 www.citygreen.ca

Calculate your current home GHG emissions

Electric Either: _____ kWh per yr ÷ 1000 = _____ MWh per yr x 0.042 = T **10**
 Or quick method: (assumes some electrical heating) average household emissions = 0.7 T =

Wood _____ solid cords per year (4 ft x 4 ft x 8 ft) x 1.58 = T **11**

Propane _____ litres per year x 0.0015 = T **12**

Fuel Oil _____ litres per year x 0.003 = T **13**

TOTAL annual home GHG emissions (add boxes **10** + **11** + **12** + **13**) = T **14**

How much can you reduce your home GHG emissions?

Low-cost and lifestyle changes—turn off lights, turn down thermostats, add shrink-wrap storms, low-flow showerheads, wrap hot water tank, use compact fluorescent lights, unplug TVs etc. when not in use; typically about 5% savings. Total (box **14**) _____ T x 0.05 = T **15**

Upgrade thermal envelope—insulation, windows, doors, draftproofing. Get an EnerGuide assessment to figure out the savings for your house, or assume 10%. Total **14** _____ T x 0.1 = T **16**

Reduce firewood use AND replace fireplace/woodstove with an EPA rated low emission stove. Assume 20% savings of GHG emissions from wood. wood GHG **11** _____ T x 0.05 = T **17**

Upgrade heating system to an Energy Star or equivalent ground- or air-source heat pump. Get an EnerGuide assessment to figure out the savings for your house, or assume 30%. Total **14** _____ T x 0.3 = T **18**

Upgrade heating system to an Energy Star or equivalent furnace or boiler. Get an EnerGuide assessment to figure out the savings for your house, or assume 20%. Total **14** _____ T x 0.2 = T **19**

Replace all major appliances with Energy Star models; saves about 0.05 T. = T **20**

Install a solar domestic hot water system; saves about 0.1 T if supplementing an electric tank.
 Other: _____ = T **21**

TOTAL annual home GHG savings (add boxes **15** through **21**) = T **22**

Salt Spring One Tonne Challenge

Food Calculator

Q: What is good for the environment, good for the local economy, good for your health, reduces global warming, saves energy, AND tastes good?

A: Local organic food!

Fossil Fuel in our Food???

A huge amount of fossil fuel goes into growing, harvesting, processing, packaging and transporting conventional food. Because this fuel is not consumed, and the pollution not created, directly on-island, it is considered an indirect energy cost. Researchers have calculated that the average North American consumes the equivalent of about 1500 litres of oil a year in conventional groceries. Local organic food uses much less fossil fuel. We estimate about 90% less on average.

Eat your way to the One Tonne Challenge!

Substitute one item at each meal (about one eighth of your groceries) throughout the year with Salt Spring organic food to reduce your annual Greenhouse Gas Emissions by about half a tonne.*

* Based on annual per capita GHG emissions of 4.3 tonnes for conventional grocery purchases, and 0.43 tonnes for local organic food. For more information, see Salt Spring Island Energy Emissions Baseline Data Report at www.islandstrust.bc.ca (under stewardship programs).

Note: food GHG calculations are more complex and less developed than direct energy calculations. We have made some educated guesses. Feel free to adapt our assumptions to your own eating habits.

Contacts

Island Natural Growers
537-5511

Calculate your current food (indirect) GHG emissions

A	Average North American annual GHG emissions from conventional food (From the work of D. Pimentel et al.)	4.3 T
B	Salt Spring "light" annual GHG emissions from conventional food (80% of A, assuming smaller portions and less meat)	3.4 T
C	Salt Spring vegetarian annual GHG emissions from food (60% of A, assuming no meat and some organic and local food)	2.6 T

in household _____ x _____ T (from A, B, or C above) = T ²³

TOTAL household annual food GHG emissions = T ²³

How much can you reduce your emissions from food?

Substitute one item at each meal (about one eighth of your groceries) throughout the year with Salt Spring organic food Total (box ²³) _____ T x 0.125 = T ²⁴

Substitute two items at each meal (about one quarter of your groceries) throughout the year with Salt Spring organic food, OR other: _____ Total ²³ _____ T x 0.25 = T ²⁵

TOTAL household annual food GHG savings = T ²⁶

Tips

- grow more vegetables grow more fruit buy more from local farm stands
- join local food box program join local food co-op raise own chickens eat less!

Calculate your air travel GHG emissions

If you fly a lot on business or pleasure, your GHG emissions shoot up.

Total km travelled by air in one year _____ x 0.0085 =

 T ²⁷

TOTAL annual household air travel GHG emissions =

 T ²⁷

How much can you reduce your air travel GHG?

The best method is to not fly, but this is not always possible. See the following emissions from different travel modes for a 100 kilometer distance (note that the car GHG emission figure assumes single occupancy, if four people travel in the car, their individual emissions are about the same as travelling by train or bus): Air: 85 kg Car: 30 kg Train: 7 kg Bus: 6 kg

Estimate how much you can save (10%, 20%, 50%) _____ x Total (box ²⁷) =

 T ²⁸

TOTAL annual air travel GHG savings =

 T ²⁸

Calculate your boat and RV GHG emissions

Boat and RV engines can produce a lot of GHG in a year. If you know how many litres of fuel you use, you can make a rough estimate as follows:

Diesel _____ litres / year x 0.0028 =

 T ²⁹

Gasoline _____ litres / year x 0.0025 =

 T ³⁰

TOTAL annual household boat & RV GHG emissions (add boxes ²⁹ + ³⁰) =

 T ³¹

Estimate how much you can save (10%, 20%, 50%) _____ x Total (box ³¹) =

 T ³²

TOTAL annual boat & RV GHG savings =

 T ³²

Indirect GHG Emissions Virtually every product in Salt Spring stores was manufactured and transported from somewhere else using fossil fuels. Some of the online GHG calculators (see last page) enable you to estimate some of the associated emissions. In general, the larger the purchase, the larger the GHG impact. To reduce indirect GHG emissions, **BUY FEWER THINGS**.

Carbon Offsets What about the several tonnes of GHG emissions left after we have cut as much as we can? The answer is to offset them by investing in projects that gobble up carbon dioxide, or reduce the amount of fossil fuels needed elsewhere in the world. Donating to a reforestation or tree-planting project is one option, or plant trees yourself. Planting one tree offsets about 30 kg. Half an acre of forest needs to be planted and maintained for each tonne of GHG produced.

Another option is to donate to one of the charitable organisations that provide renewable energy to third world villages. A small solar array coupled with very high efficiency LED lighting can provide a village with lights for reading and may eliminate the need to hook up to a fossil-fuel powered electrical grid. For example, see the website for the Light Up the World Foundation: www.lightuptheworld.org.

You can also purchase wind power certificates from the Pembina Institute: www.pembina.org/wind_power.asp.

Summary: your working copy

Instructions: This is your working copy. Copy the values from the worksheets to the corresponding boxes on this page. When complete, please post this sheet on your refrigerator. Copy the results onto the Final Copy and return to the Earth Festival Society. Your name will automatically be entered in the One Tonne Challenge prize draw.

This commitment is for how many adults? ____ How many children? ____
How many cars? _____

Automobile

I/we estimate my/our total annual automobile GHG emissions to be about
I/we commit to reducing this by about

- Methods:**
- Check tire pressures and get car serviced regularly
 - Eliminate one trip in five by staying home, walking or cycling
 - Eliminate one trip in five by carpooling or ride-sharing

- Get more fuel-efficient car
- Avoid idling
- Other: _____

Current
GHG emissions

 T ³

Savings

 T ⁹

Home

I/we estimate my/our total annual home GHG emissions to be about
I/we commit to reducing this by about

- Methods:**
- Low-cost and lifestyle changes
 - Upgrade thermal envelope-insulation, windows, doors, draftproofing
 - Reduce firewood, use high-efficiency stove
 - Upgrade heating system to an Energy Star heat pump
 - Replace all major appliances with Energy Star models
 - Install a solar domestic hot water system
 - Upgrade heating system to an Energy Star or equivalent furnace or boiler
 - Other: _____

 T ¹⁴
 T ²²

Food (indirect GHG emissions)

I/we estimate my/our total annual food GHG emissions to be about
I/we commit to reducing this by about

- Methods:**
- Grow more vegetables
 - Grow more fruit
 - Raise own chickens
 - Join local food box program
 - Buy more from local farm stands
 - Join local food co-op
 - Other: _____

 T ²³
 T ²⁶

Travel

I/we estimate my/our total annual air travel GHG emissions to be about
I/we commit to reducing this by about

I/we estimate my/our total annual boat/ RV GHG emissions to be about
I/we commit to reducing this by about

 T ²⁷
 T ²⁸
 T ³¹
 T ³²

Now add each column to find the totals

My/our TOTAL annual GHG emissions are about

 T ³³

I/we commit to SAVE each year about

 T ³⁴

Summary:

submit this copy

Return this sheet to: Earth Festival Society, 171 Vesuvius Bay Road,
Salt Spring Island BC V8K 1K3 Your name will automatically be entered in the
One Tonne Challenge prize draw.

This commitment is for how many adults? ____ How many children? ____ How many cars? ____

Automobile

I/we estimate my/our total annual automobile GHG emissions to be about
I/we commit to reducing this by about

- Methods:**
- Check tire pressures and get car serviced regularly
 - Eliminate one trip in five by staying home, walking or cycling
 - Eliminate one trip in five by carpooling or ride-sharing

- Get more fuel-efficient car
- Avoid idling
- Other: _____

Current
GHG emissions

 T ⁸

Savings

 T ⁹

Home

I/we estimate my/our total annual home GHG emissions to be about
I/we commit to reducing this by about

- Methods:**
- Low-cost and lifestyle changes
 - Upgrade thermal envelope-insulation, windows, doors, draftproofing
 - Reduce firewood, use high-efficiency stove
 - Upgrade heating system to an Energy Star heat pump
 - Replace all major appliances with Energy Star models
 - Install a solar domestic hot water system
 - Upgrade heating system to an Energy Star or equivalent furnace or boiler
 - Other: _____

 T ¹⁴
 T ²²

Food (indirect GHG emissions)

I/we estimate my/our total annual food GHG emissions to be about
I/we commit to reducing this by about

- Methods:**
- Grow more vegetables
 - Grow more fruit
 - Raise own chickens
 - Join local food box program
 - Buy more from local farm stands
 - Join local food co-op
 - Other: _____

 T ²³
 T ²⁶

Travel

I/we estimate my/our total annual air travel GHG emissions to be about
I/we commit to reducing this by about

I/we estimate my/our total annual boat/ RV GHG emissions to be about
I/we commit to reducing this by about

 T ²⁷
 T ²⁸
 T ³¹
 T ³²

Now add each column to find the totals

My/our TOTAL annual GHG emissions are about

 T ³³

I/we commit to SAVE each year about

 T ³⁴

Salt Spring One Tonne Challenge

Name: _____

Address: _____

Postal code: _____

Tel: _____

Email: _____

Privacy note: your personal information is strictly confidential and will not be shared with any other organisation. The data will be consolidated with the other responses to determine Salt Spring's success in reducing GHG emissions. Individual responses will be destroyed.

Three easy ways to submit and enter our Prize Draw:

1. Mail completed final copy to: **Salt Spring One Tonne Challenge**
171 Vesuvius Bay Road, Salt Spring Island, BC V8K 1K3
2. Or drop off in One Tonne Challenge envelope at Apple Photo
3. Or visit the Salt Spring One Tonne Challenge website www.saltspring-onetonnechallenge.org
Follow the directions and email your data to us.

Resources to calculate your GHG emissions on-line

- www.clearwater.org/carbon.html (a downloadable Excel spreadsheet)
- www.energyalternatives.ca/sub_pages/AtmosphericCarbon.html (from Energy Alternatives in Victoria)
- www.onelesstonne.ca (from the Pembina Institute)
- www.climatechange.gc.ca (Government of Canada site)
- www.oee.nrcan.gc.ca/idling (vehicle idling calculator)
- chooseclimate.org (air travel emissions)

For More Information...

- www.oee.nrcan.gc.ca (The Office of Energy Efficiency at Natural Resources Canada)
- www.davidsuzuki.org/WOL/Challenge/ (David Suzuki Nature Challenge)
- www.earthfuture.com (Guy Dauncey's site on climate change, economy and ecology)
- "Stormy Weather-101 solutions to climate change" by Guy Dauncey
- www.climatechangesolutions.com (Climate Change Solutions)
- www.bcclimateexchange.ca (the BC Climate Exchange)
- www.bcsea.org (BC Sustainable Energy Association)

Grants and Rebates

- BC Hydro's Powersmart rebate: www.bchydro.com/powersmart
- EnerGuide for Houses homeowner incentives:
www.oee.nrcan.gc.ca/houses-maisons

Need help
or more information?
Contact the Earth Festival
Society at 537-2616 or
www.saltspring-onetonnechallenge.org.