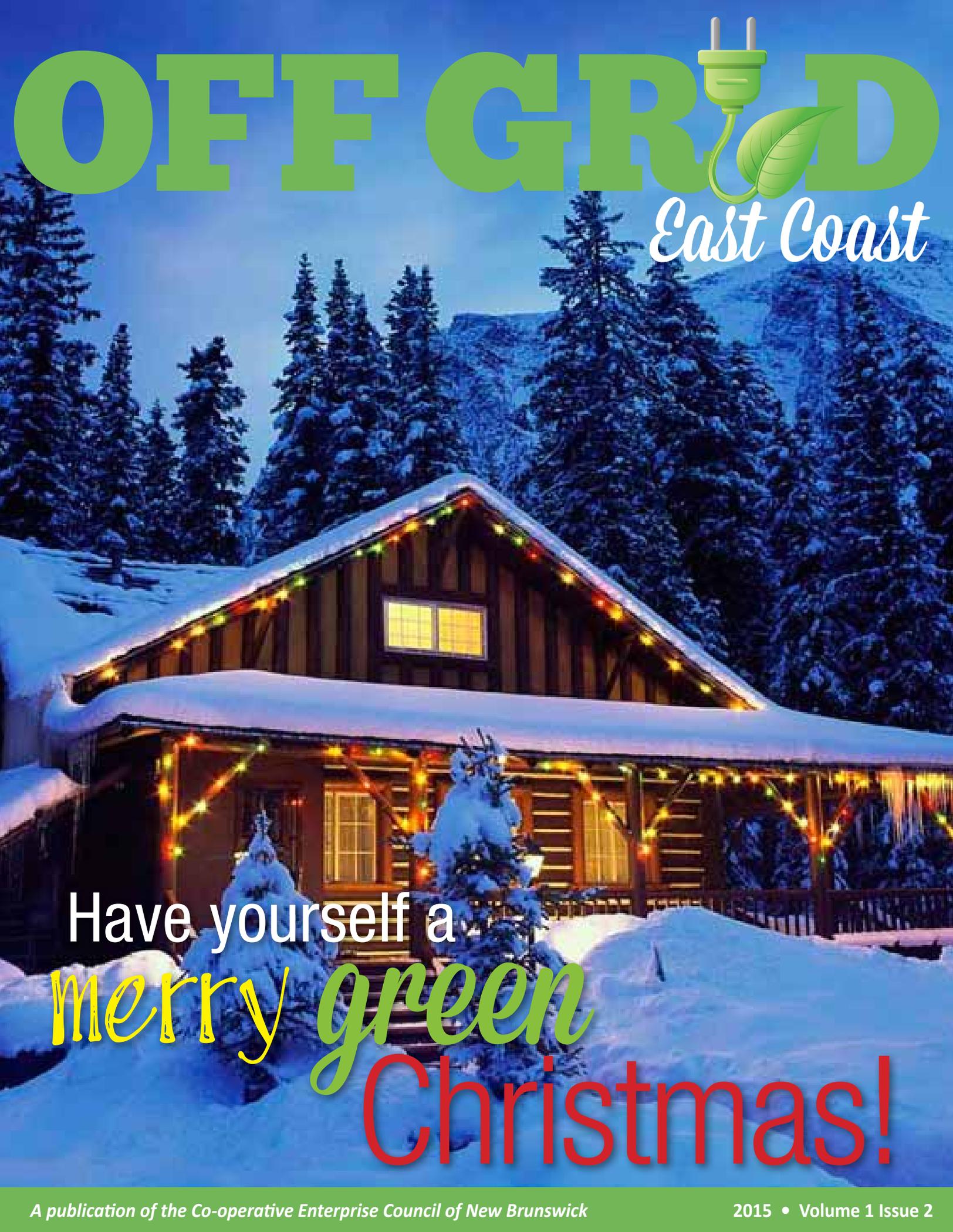


OFF GRID



East Coast



Have yourself a
merry green
Christmas!



Get to know the Co-operative Enterprise Council of New Brunswick

NB's Community Economic Development Agency

CECNB is a member-owned non profit that supports the development of co-operatives and other businesses with social, environmental, or cultural goals. We offer technical and advisory services to help with start-up, growth and sustainability, and provide a wide array of training, resources and events to help build the capacity of community enterprises and people.

CECNB is very proud to bring you our new publication, OFF GRID EAST COAST, and hope you find value and inspiration in the articles and stories. CECNB believes that by working together co-operatively, supporting one another, and sharing information, we CAN build strong green economies in Atlantic Canada.

Off Grid East Coast is meant to demonstrate that not only can it be done, *it IS being done!*

Contact us today for more information!

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More than raised beds



Dedicated to Maritimers who are passionate about the environment.

www.offgrideastcoast.com

Off Grid East Coast is an electronic magazine that promotes renewable energy and sustainable living in Canada's Maritime provinces.

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Publisher, Co-Editor

Wendy Keats

Executive Director

Co-operative Enterprise Council of New Brunswick

(506) 227-9607

Wendy.keats@cecnb.ca

Co-Editor

Rayanne Brennan

Manager

The Creative Co-op

500 St. George Street

Moncton, NB

(506) 858-6617

(506) 961-3633

rayanneb@rogers.com

Director of Advertising Sales

Steven Boyce

The Creative Co-op

(506) 852-1001

stevenboycecanada1@gmail.com

Graphic Designer

Colleen Maguire

kissdesigns@rogers.com

Web Designer

Heather Proudfoot

Social Media Manager

Milaine Robichaud



Wendy Keats

Its hard to find words to describe the reaction to our first edition of Off Grid East Coast, but let me try. Overwhelming, heartwarming, exciting, mind-blowing, and...well, you get the picture! Thousands of you read the magazine and many of you wrote or called to tell us how much you liked it. Your comments have furthered our belief that you're as hungry for stories about local people doing real things to become more sustainable as we are. Which is why we're so excited to bring you more!

Maritimers are doin' the holidays green

Here on the East Coast, we have always been good neighbors and stewards of the environment. Concern for our land, habitat, and people are at the very core of our culture and values. We care about the planet and told our politicians as much in the recent federal election.

So as the world debates carbon taxes and reduced emissions at COP21, people here at home are already doing their part and showing the world what can be done when we truly believe in something. This edition of Off Grid East Coast showcases just a few of the many examples of Maritimers who are celebrating the holidays without sacrificing the environment.

Yes, we can still indulge to excess

At no other time of the year is there so much pressure to over-indulge. Christmas is often a complete extravagance of food and drink, gifts and gadgets, lights and decorations. And let's be honest, we love it! Some of us wait for it all year and we don't want to give it up.

The good news is that we don't have to! We can still eat too much local food and drink too much local wine. We can give too many homemade gifts wrapped in recycled paper, or put a ton of LED lights on our living Christmas tree! In other words, we don't have to give up the things we love just because we want to be more sustainable. We just need to do things a little differently. Indeed, that's the whole message we're trying to send through Off Grid East Coast. It isn't about sacrifice, its just about change.

Its Christmas!

I love Christmas, always have and probably always will. I love the feelings of cheer and glad tidings, the songs and old movies, the gatherings and the traditions. I even love watching the snow fall (although preferably with a glass of wine in my hand, sitting in the wood-fired hot tub, knowing it will all melt by the next day).

So my wish to all of you is that you have a wonderful a holiday season filled with an excess of family, friends, laughter and love. I'll look forward to seeing you all in 2016 – the Year of Living Off Grid!

Memories of Green Christmases

Rayanne Brennan



Editing this issue brought to mind fond memories of my childhood Christmases.

At the risk of revealing my age, Christmases back then were simple celebrations, free of the modern trappings that have turned this religious holiday into a retail frenzy. Today, the green in Christmas symbolizes the colour of money, rather than the natural colour that once made the season merry and bright.

Our Christmas trees were cut from the forest surrounding our farm in northwestern New Brunswick. Gifts were trimmed with brown paper wrapping and tied up with string. We were the first family on our rural road to put up outdoor lights and it was one set that stretched across the roof's edge.

We didn't have to think about a "green Christmas." It just was.

Stringing popcorn

Our location meant we were limited in the stores from which to buy merchandise. However, we had an abundance of natural resources to fill our home with holiday cheer. I vividly recall collecting pine cones and boughs of fir to make our home festive, stringing popcorn and cranberries to decorate our tree, baking gingerbread and shortbread cookies to share with family and neighbours.

Berlin wall

One of my fondest Christmases was the year my family, including my five siblings, made homemade gifts in place of store-bought presents. Those gifts included pieces of the Berlin Wall that my brother Neil had chipped with his own hands, having been there for that historic occasion while studying overseas.

To this day, we shun the commercialism of the season, limiting our spending, and spending time with each other instead.

In short, the older we get, the more we realize, the things that we want, can't be bought.

Have a happy, healthy holiday everyone.

Off Grid East Coast

Dedicated to earth-friendly Maritimers

Off Grid East Coast is for and about renewable energy and sustainable living enthusiasts—homeowners and industry professionals alike.

The goals of our publication are:

- To educate and inform the public about energy alternatives and sustainable practices
- To profile Maritimers who are leading by their examples of "green" living
- To provide a venue for companies offering "green" products and services to advertise to the Maritime market

Off Grid East Coast provides hands-on, practical information about earth-friendly technologies and techniques. The content features an exciting mix of real life stories, informative articles, and general interest pieces that foster our shared goals of sustainability. It covers a wide range of topics from PV panels to permaculture and everything in between. Be prepared to be informed and inspired!



Check us out on facebook



Bringing solar power home

By Carl Duivenvoorden

If you're not quite ready to go off grid but you've long dreamt of lowering your carbon footprint and becoming energy self-sufficient, here's some great news: the technology and economics of solar power systems are getting better every day.

Here's a quick overview of grid-tied solar power systems: components, costs, payback and pitfalls.

Components

Solar power systems consist of three main components: panels; mounting systems; and inverters.

Panels, the visible part of solar systems, have been the focus of much research and development in recent years. As a result, they now cost a fifth of what they cost just five years ago. The most common size is 250 watts, about one meter wide by 1.5 meters long. Solar arrays can include as few or as many panels as desired. Panels typically carry 25 year warranties.

Panels can be mounted on the ground, on poles or on rooftops. Rooftop installations are most discreet. Ideally, roofs should be south-facing, steeply pitched and shade-free.

Inverters are electronic devices that take the power

generated by panels (low voltage direct current) and convert it into grid-compatible power (120 volts, alternating current). Solar systems can have a single large inverter (the disadvantage being that the entire system goes down if it fails) or a small inverter for each panel (the advantage being that failure of an inverter affects only one panel). Systems with the latter option are most easily expandable.

Sizing

In New Brunswick, you can produce whatever power it takes to lower your annual bill to zero. The 'annual' part is important: it means you can feed a surplus into the grid during the bright days of summer and then draw down that surplus during the dark days of winter. However, you won't get credit or compensation if you feed more into the grid than you use on an annualized basis (and accounts are reset every March 31).

The number of panels required by a home depends on how many kilowatt-hours are consumed annually, as indicated on a power bill. A qualified installer can review your bill and tell you what size system you need. Efficient homes may be able to achieve energy-neutrality with a 5-8 kilowatt system; the average home would more likely need a 10-12 kilowatt system. An array that size would cover most of a typical roof.

Costs and payback

Complete grid-tied solar systems – panels, mounting systems and inverters plus all inspections and permits – cost between \$3 and \$3.50 per watt. Under NB market and sunlight conditions, solar systems pay for themselves in 15-20 years.

If those numbers make you frown, consider these three points. First, once you have your own system, you're totally protected from rising power rates. In fact, the quicker they rise, the quicker your system pays for itself. Happy face.

Second, if a 15-20 year payback seems long, pause for a minute and consider the payback of your current power arrangement.

Third, generating your own emission-free energy comes with a certain satisfaction and peace of mind that transcends economics.

You can find installers via the yellow pages or an internet search. Be sure the one you choose has certifications, and get references. The website of the Canadian Solar Industry Association, www.cansia.ca, offers good guidance.

Add-ons

For true resilience, solar systems can incorporate batteries to supply household electricity during power failures; such setups are essentially grid-tied systems with off-grid capabilities. In jurisdictions where power rates vary by time of day, batteries offer a business opportunity: selling power into the grid at expensive times and recharging from solar panels or from the grid at cheap times. Batteries are still quite pricey, but capacities are increasing and costs are coming down rapidly, thanks in large measure to intense research and technology in the electric car sector. The day when electric car batteries can be charged by solar panels is probably not too far off.

So, no matter whether you're on the grid or off, solar panels are a great way to reduce your carbon footprint and achieve a satisfying measure of energy self-sufficiency.



About the Author

Carl Duivenvoorden is a speaker, writer and sustainability consultant, helping people and organizations learn how they can save money, energy and our environment. His column, Green Ideas, runs every other Tuesday in the NB Telegraph Journal, the Fredericton Daily Gleaner and four weeklies, as well as in the Huffington Post. He lives in Upper Kingsclear with his wife and two sons.

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EnerGreen Builders Co-operative is proud to have received the
New Brunswick Premier's Award for Energy Efficiency in Residential Homes 2014.

“We did this to make a meaningful difference in the world. There is an imperative to take action to reduce climate change. Everyone who has the means should be taking action.”

– Roger Boutilier

Off-Grid? On-Grid? Your choice.

Either way, solar energy delivers.

By Wayne Groszko

Maybe you have always wanted to live off-grid? But what if you live in town and you already have a grid-connected home? You can still make your home solar powered, without having to disconnect from the grid, using the arrangement known as net metering.

Meet Joan and Roger Boutilier. They have a grid-connected, net metered 5-kilowatt solar photovoltaic (PV) array on their home in Wolfville, Nova Scotia. Installed in 2014, the PV array produces electricity that powers their home on sunny days.



Joan Boutilier at her home with the solar PV array on the roof. Her solar water heater stands in the middle of the array

“It’s so fun! The best thing is to see how much energy it’s making online. I like to check and see which panels are doing well.”

- Joan Boutilier

Energy credits, significant savings

Net metering means that anytime there is extra solar power, it feeds out through the electric meter and into the grid, powering their neighbours’ homes, gaining a credit for the Boutilier family on their electric bill. When there is not enough solar power, they use their credit to buy the electricity back. All of this happens automatically, with no need for user intervention or maintenance of batteries. The net result is a significant savings on their electric bill.

Joan and Roger are very happy with their solar array. Their sophisticated online monitoring system shows them that in a 12-month operating period, the array has produced over 5,000 kilowatt-hours (kWh) of electricity. In Nova Scotia, that means their solar array has already saved over 3.5 metric tonnes of greenhouse gas emissions from being emitted into the atmosphere, which is a big part of the reason they installed the system.

One in series of steps

For Joan and Roger, the solar PV installation is just one of a series of steps they have taken to reduce their environmental footprint. In 2008, they installed a solar water heater on the roof, which is saving them lots of energy for their domestic hot water supply. Then in 2009 they had an Efficiency Nova Scotia energy assessment. Based on those recommendations, they have increased the insulation in their attic and basement, saving even more energy. They have also installed an electric thermal storage unit, to take advantage of less expensive night-time electricity with the time-of-use rate available in Nova Scotia.

After attending several courses and seminars on sustainable energy alternatives, they decided to take the next step and go for solar electricity. After some planning and a few hurdles, they are now successful producers of solar power at their home.

First winter was tough

The first winter for their PV array was a tough one. Anyone who was in Nova Scotia in February and March of 2015 would know why. Deep snow and intense ice conditions blocked the panels, cutting output for almost two months. But the array suffered no damage, and bounced back in the spring, still providing 91% of its projected annual output over the whole year.

Because of the net metering arrangement, any surpluses from summer can be used to offset shortfalls that may happen in winter. This makes net metering an effective way to average out the variations in sunshine that we get through the seasons in the Maritimes.

Signing up for net metering is a bit of a process. In Nova Scotia it involves what's called an "Interconnection Agreement" with Nova Scotia Power, or with the smaller municipal electric utilities if you live in one of their areas. Basically, this is an application form that has to be sent in and approved. It requires the services of a qualified electrician to obtain the electrical permit, produce the necessary line diagram, and arrange for inspection. Most solar installation companies can take care of all that.

Start interconnection agreement application early

One thing to be aware of is that the interconnection agreement can take some time. It's a good idea to start the interconnection application early, and expect it to take a couple of months. Sometimes a project is ready to be switched on, but has to wait for the interconnection agreement to be finalized. This can be frustrating, but well worth the wait once the solar power starts flowing.

Roger and Joan found that their interconnection and installation went fairly smoothly. A local electrician hired by the solar installer did the electrical work, and they were pleased with the results. There were a few hiccups in the first few months, but the installer fixed those issues and now it's performing splendidly. They are proud to look at their solar panels and know that whenever the sun is shining, they are making clean, green power.

Arrangements available throughout Maritimes

Net metering arrangements in a variety of forms are available in all the Maritime Provinces – Nova Scotia, New Brunswick, and Prince Edward Island. The details and the rules vary slightly from province to province. Ask a solar installer in your province for more information, or search online for net metering in your province.

If you are considering installing a net metered solar PV array at your home, a good resource for finding installers is the solar directory published by Solar Nova Scotia: Link: <http://solarns.ca/Atlantic-Canada-Solar-Directory>
May the sun shine on your home.

Specs:

Array capacity	5 kilowatts (kW)
Number of panels	13
Type of inverter	Enphase micro-inverters
Output in 12-months of operating	5,100 kilowatt-hours (kWh)
Cost	\$20,000
Expected operating life	25 years or more
Installer	Fundy Solar



About the Author

*Wayne Groszko, Ph.D.
Wayne teaches Energy Sustainability Engineering Technology (ESET) at the Nova Scotia Community College, volunteers with the Ecology Action Centre, and also does renewable energy consulting, research, education, and speaking with the Community Energy Cooperative of New Brunswick.*





Simpler Christmas

Homemade gifts give her joy

By Genevieve Losier

“The simple things are also the most extraordinary things, and only the wise can see them.”

— Paulo Coelho, *The Alchemist*

Every year around this time I shake off my melancholy blanket that November always seems to bring, put on my “You Got This” t-shirt and get to work. It’s soon Christmas, and every year I vow to make it different, to make Christmas simpler with homemade gifts, baking made with lots of love, and simple rustic decorations. I refuse to fall for commercialized items that people spend insane amounts of money on, which break or fall apart, only to be forgotten. My kids know this, my family knows this, and although they won’t be getting the latest iPod or the popular toy of the day I hope they know that what I create and put a lot of thought and time in is the best I can personally offer. You see, I want the gift to last. I want the gift to be useful. I want the gift to be unique; something that can’t be bought in stores. I want it to come from the heart.

Sure, I could just as easily try and save money during the year and then peruse the store aisles with a million other people, rushing, rushing, buying on a whim, selling my soul for items made in factories in the East. Harsh? Maybe.

Reuse, recycle

The thing is, I don’t have that cash to buy, well, pretty

much anything. And that is ok. I’ve learned through the years that it’s more than ok. It has forced me to get creative, and I learned that I have hidden talents I never knew existed. It’s forced me to reuse and recycle, and in the process I have learned to be self-sufficient. It has forced me to REALLY look at consumerism and how we work only to squander our hard-earned savings, and I learned that family, friends, connection, is what really matters. It has also made me think twice about where the gift comes from, and how shopping locally helps my neighbor who also works hard at supporting their family.

Immense joy

It’s not what some are used to, in fact I have sometimes gotten “the look.” You know, the “Oh gawd, something homemade, how cheap” look. Ahhhhh, if you only knew. If you only knew the hours spent bent over a sewing machine late into the night, fighting with a new pattern to follow, the patience required to bake with a toddler, the million interruptions that is normal in the life of a mother...And yet, it brings me immense joy to be doing all of these things, because with each and every stitch, every spoonful of dough, every stroke of the paintbrush, love pours out of me when I think of who I am making these gifts for.



About the Author

Geneviève is a mother of 3 who is passionate about all things wild, be it wild foods and medicines, ancestral skills, teaching her children and others about rewilding and connecting with the outdoor world of plants and animals. She shares insights, poems, and stories so that others feel inspired to go out and enjoy the natural world and learn to live authentically, with passion and unbridled joy. You can find her at Bare Soul Living & Herbs on Facebook and soon on www.baresoulliving.com.

Simpler Christmas

This year, Christmas will be even simpler than before, and that is just what we need. And I'm so glad it will be because I will have the incredible opportunity to truly savour family connection. I have a daughter who is immersed in herbal learning just like me, and we will both be creating with herbs we have wild crafted and grown ourselves. I have a son who, just like his father, loves ancestral skills and who creates the coolest toys and games. And I have a toddler, who just by being himself makes my heart swell and sing with joy.

So this Christmas, I urge you to reign in the spending, and create with your hands and your heart instead. Take the time to visit local craft shows as well, these people are some of the most interesting and amazing people I know. Allow yourself the luxury of quietly, consciously and lovingly imagine the Christmas YOU want and long for.

Happy creating, friends!

Genevieve Losier from Memramcook
theclothcanoe@gmail.com

Made with love and nature



Deer Rattle

This isn't a usual toy, but it's one that uses what is found in nature. Deer bone rattle made with deer hooves, deer leg bone, scraps of leather and porcupine quills. This is what happens when you get the creative bug and you use what you have harvested in the woods!"



Spruce Winter Salve

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or: The Simpleton's Guide to Light Bulbs

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\$75
every year*

Avg saving
\$3.80
per bulb
per year

25 bulbs
needed to
equal the
lifespan of
1 LED

*Based on replacement of top five most used fixtures with LEDs

\$122
Incandescent

vs.

\$17
LED

COST TO BUY AND RUN YOUR XMAS TREE LIGHTS FOR THE NEXT 10 SEASONS

LIGHT BULB TYPES

	Annual Cost	Life (Hrs)	FYI
 <p>INCANDESCENT 130 year old design 90% Heat, 10% Light</p>	\$4.⁸⁰	1k	<p>Outlawed! Replace often Unreliable, fragile, flicker High Energy consumption Opt for Efficient Halogens</p>
 <p>CFL Compact/curly version of long tube fluorescent</p>	\$1.²⁰	10k	<p>Uses 1/4 of incandescent 9 month Payback Contain Mercury Aren't all dimmable Please Recycle!</p>
 <p>LED Solid-state lighting 80% efficiency over incandescent</p>	\$1	25k	<p>Most efficient lighting option Lasts up to 25,000hrs Mercury-free, No flicker. Instant-on Dimmable</p>

Based on 2 hrs/day of usage

LOOK FOR

- The Lighting Facts Label on the box
 - Look for Energy Star Rated 
 - Lumens matter, not Watts
- | | | |
|------|--------------------|------------|
| WARM | Colour Temperature | COOL |
| 2.7k | YELLOW | WHITE 6.5k |

WE SUGGEST

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 - OLEDs: A new lighting option that integrates light bulb and fixture into one
 - Look for these reputable suppliers:
- 




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* NB residential properties only. Applicants must be a resident of NB. Individuals must qualify for financing/OAC.



Where do we live and what do we live in?

Frank Pittman Column

Since deciding to go off-grid, I have been looking into different ways to build a house on our land in Ship Harbour and have seen some unusual and also some very inventive ideas over the last year or so. From Sea Cans, Geodesic Domes, Straw Bale, Prefab, Tiny Home, Bunkies and Mud Huts, it runs the gamut from basic to high end. I am weighing the options and welcome all comments and suggestions!

Sea Cans

In my previous article, I was really into the idea of a Sea Can as the basic structure for our home. I have since learned from Planning and Development for my area in Nova Scotia that I would have a very long and drawn out process on my hands if I wanted to do so. The amount of red tape that I would have to go through does not fit into the timeline that my wife and I have to build.

Apparently, a Sea Can is considered a vehicle body as far as Planning and Development is concerned and as such is not allowed to be used as a dwelling. I have spoken to some engineers in Nova Scotia and they told me that it is all about the wording and the context in which you present your development permit.

While this may be so, I am concerned the inspector could halt the project as the wording is open to interpretation. I have spoken to four couples that this has happened to and they were devastated and unable to continue with their dream. This has brought me to think of other ways to build a home on our land.

Geodesic Domes

These domes have intrigued me for a long time. The positives are a quick build time and very energy efficient. They can be erected and set in a matter of days and there is a potential to save between 24-40% in heating costs, depending on who you talk to.

The downside will be finding someone in my area that has the experience to erect the dome as they are a complex structure. It seems to me a person would need a PhD in Geometry just to frame it. Since a simple protractor confuses me, the dome may be out.

Straw Bales

Straw bale homes are also interesting. On the plus side, I've heard that the cost savings can be quite substantial if you can get the straw for a good price. The amount of time that



About the Author

"Frank and his wife currently live in Edmonton and have recently bought land in Ship Harbour, NS where they plan to build an off-grid home. They are taking us all on their journey beginning with the research phase through to...well, where ever they happen to end up!"

it takes to erect the shell is also a bonus. However, I've also heard there can be some issues with the life of the structure if it's not built properly.

While straw bale homes are environmentally friendly, I want to make sure I build something that I can pass on to my child. I also question the sturdiness of a straw bale house. I can't help but always think of the three little pigs and their house made of straw. The winds in Nova Scotia can be quite substantial especially if a tropical storm or hurricane hits and I wonder if it would be able to withstand the sustained winds. Any thoughts on this folks?

Prefab housing

The upside of a prefab house is the short amount of time to build and being able to customize to fit your family's needs. Whatever style you want can be yours, it is only limited by your imagination. They are built to meet all building codes so that is a gigantic asset.

However, the cost can be prohibitive and the various people I have spoken to tell me the price can be as much as a regular house to build. I've also heard there have been issues of leaking, something I have personally witnessed at a friend's house.

Tiny Houses and Bunkies

Tiny houses (often on wheels) and bunkies (a tiny house on a foundation) are now the rage for people who want to unplug from conventional living. A typical home today is around 2,600 square feet, whereas the typical tiny house is between 100 and 400 square feet. The plus is that you can build them more cheaply and can customize them to suit your needs. Of course the downside is the limited space you have.

Mud Hut

Last but not least, what about Mud Hut? I've seen a few online but I have to admit that I wonder, if I lived in a mud hut would I come out looking like a coal miner finishing a 12 hour shift? I can't seem to shake that image for some reason.

So, as you can see I can use your help! If anyone has any suggestions or comments or ideas to help us along the way or wants to yell at me with caps lock on, please feel free to contact me at pittman39@hotmail.com.





(Nancy Russell/CBC)

PEI's first Passive House costs just \$20 to heat since last February

"It all began with a dream"

These are the first words written by Beth Peters on January 21, 2014 in her blog [Long River House](#), a chronicle of her family's journey in building PEI's first Passive House, a super-insulated, super-air sealed, extremely efficient home. For the next year, Beth wrote about the things they learned about insulation, air sealing, thermal bridging, windows, energy modeling, and many other issues that needed to be taken into consideration as they built their home.

A Passive House is built to a rigorous set of standards developed in Germany. More than 40,000 have been built in Europe and the European Union is requiring any new buildings to meet these standards by 2020.

A blow dryer could heat their home

Beth and her family moved into their Passive Home on Valentine's Day 2015, right in the midst of one of our worst winters ever. Ten months later, they were "happy to brag" in a [CBC television interview](#) that, according to their energy monitoring system, TED (The Energy Detective), the Peters consumed only \$20 worth of heat between February – December 2015.

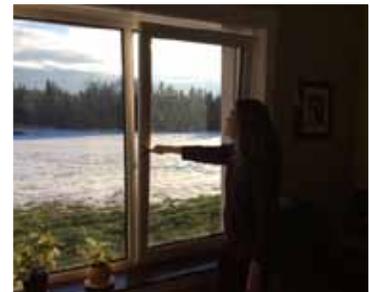
One small electric heater is their sole source of heat. "A blow dryer is 1500 watts," explained Peters. "So we basically have a heater the size of a blow dryer heating a 2,000 square foot house."

On the days they used heat, they averaged about 4 kw per day, which they pay slightly over 13 cents per kw for. The highest cost on any single day last year was \$1.50.

However, Beth notes that this past month has been one of the cloudiest yet so she's expecting her December bill to be a bit higher.

Passive heat is captured and 85% prevented from leaving

There are a number of features that make the Peters home so energy efficient, including the five south-facing, extra large, triple-paned, specially-sealed windows imported from Ireland. The exterior walls are 24-inch thick with 75 pounds of densely packed cellulose insulation between each stud and the doors are made to seal like the doors of a bank vault. A special air exchange system captures 85% of the heat in the air and prevents it from leaving the house.



How much does it cost?

Saving money on heating costs was certainly important to the Peters however it wasn't their primary motivation for building a Passive House. As environmentally-conscious people, they wanted to do whatever they could to reduce their carbon footprint and to teach their four young children by example. They also wanted to show others that it can be done and in addition to blogging, Beth opens her home to others and does presentations to help answer people's questions. One of the first of which is always, "How much does it cost?"

'We want people to see that this can work'

— Beth Peters

According to Beth, the up-front costs were about 20% more than if they'd built a conventional home however this will quickly be recouped from the savings in their heating costs. As a young couple, this is an investment in their future that will have returns for decades to come.

You can do it too!

The Peters are on the cutting edge of new building technology that can truly have an impact on reducing our reliance on fossil fuels. And they say anybody here on the East Coast can do it too. "Even though it's something different, and it's not something that people are used to around here, it's possible. We can do it in our climate and have fantastic results."

Beth says she's already talked to several Island couples in the planning stages of building a Passive House and she plans to continue to post updates on the blog, and give tours and talks about the house. "It was a long process planning and designing the home and getting in here," said Peters. "Now it's just time to settle down and enjoy living in our home."



See *Passive House Explained in 90 seconds*
<https://vimeo.com/74294955>

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WOOD:

The unsung hero of
clean and green
energy production

By Andrew Skaling

When we hear public officials orating on the importance of clean and renewable energy to the future of the planet we rarely hear about biomass, in particular, wood biomass. Perhaps it's because it's not widely understood or the mere mention of the use of trees in energy production conjures images of clear cut forests and billowing clouds of sooty smoke.

The simple facts, however, are vastly different than the conventional perceptions or limited interest. Wood biomass in energy production is “aces” because it's clean, it's green, it's renewable, it's cost friendly and, it's reliable.

Europe leads the way

Europe is the undisputed leader in the environmentally-responsible use and development of new technologies for using wood as a clean energy and heat source. Not only have a number of northern countries led the way in transitioning from fossil fuels to wood based renewables in their large scale power production plants but also, and perhaps most interestingly, at the community and off-grid business level. As a common example, it is not unusual in urban environments in the Nordic countries to have entire city blocks of housing interconnected to a localized heating plant. Increasingly, these are taking

the form of combined heat and power plants. These are managed and maintained by a community co-op, a landlord, a private energy firm, the local government or usually some combination of. An equally common and growing demand exists for off grid farms, rural communities seeking reliable and local energy and businesses, industrial and otherwise, looking to improve their carbon footprint and bottom line.

Biomass comes in many forms

Wood biomass comes in many forms such as wood waste from forest products to tree trimmings or diseased tree removal to traditional but sustainable harvesting from managed forest tracts. A timely and seasonal example of a wood biomass source is the Christmas tree. Municipalities, after they collect them at the side of the road in January, typically put them through a wood chipper. It varies from place to place as to the end use but in a community where there is biomass energy production the beloved symbol of the Christmas holiday may very well end up producing heat and/or electricity.

Province built on forestry sector

In New Brunswick the tree is indelibly tied to the entire history of the province – economically, socially and

naturally. The province was largely built on the forestry sector, from shipbuilding to sawmills to pulp and paper production and beyond. In a cold northern climate such as this, it's only natural that sustainable wood-based energy production be at the top of the list for businesses and communities looking at localizing their power production. Slowly, but surely, progress and developments are happening. Most mills in the Province make use of their wood waste (and have for some time) either on site in biomass boilers or by converting it into value added products, like wood pellets or bedding for animals etc. Significant demand for commercial grade wood pellets in Europe has a number of businesses in the province looking at large scale pellet production – a potential boon for the moribund and dwindling forestry sector in the province.

Woodlot producers offer sustainable supply

Forget the economic giants in the province; if a business or community goes the route of localizing their power production, their local private woodlot folks are the go-to ones for sustainable supply.

To bring it all back to earth, the humble tree, which serves the planet so nobly and in so many incredible and varied roles, is a critical contributor to solving the clean energy conundrum. Wood biomass is not the solution but it certainly is a big part of the answer to the larger clean and renewable energy question. Be it high efficiency pellets or the various wood based community power plant options, when it comes to checking all the boxes of what is real and doable in the “clean green” energy space wood is good.

About the Author: Andrew Skaling is Partner and VP of AvorEnergy. Visit www.avorenergy.com



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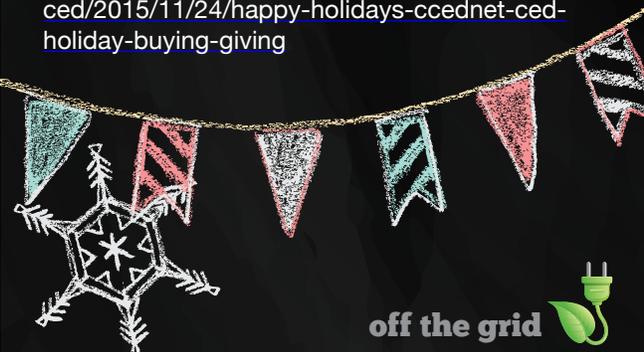
Canada's Community Economic Development Organization, CCEDNET, has produced a guide that is designed to encourage thoughtful buying and giving.

It includes creative gift ideas and shopping guides to help you make a difference in your community this holiday season.

See anything missing from the list?

CCEDNET will be adding more tips between now and Christmas so don't hesitate to send yours to communications@ccednet-rcdec.ca

<https://ccednet-rcdec.ca/en/new-in-ccd/2015/11/24/happy-holidays-ccednet-ccd-holiday-buying-giving>

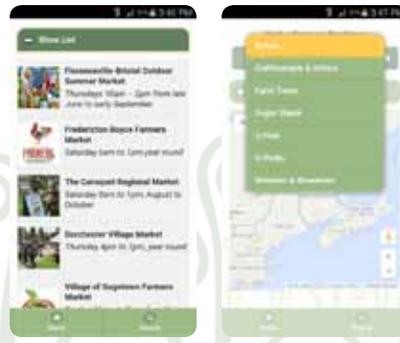


BuyLocalNB™ Smartphone App Released

The Conservation Council of New Brunswick recently released its new BuyLocalNB™ smartphone app that helps New Brunswickers find local food, products, crafts, local retailers and farm experiences near them. Their website www.buylocalnb.ca features a user-friendly searchable database of local growers, producers, retailers and agri-tourism operators.

Local businesses can add their products and services to the inventory by sending their information through the “Add your Business” form directly on the website.

The app, now available as an Android download and soon in iOS, is a complementary tool that focuses on getting visitors to farms, farm stands, markets and places where they can experience local food. The search map provides handy reference for finding what’s close or what’s a Sunday afternoon drive away.



www.buylocalnb.ca



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Choosing a real Christmas tree

Since the early settlers, families across Atlantic Canada have bundled their kids into snowsuits, tromped through a foot (or three) of snow, and spent hours scouting the woods for that special tree that wasn't too tall, short, fat, or looked like Charlie Brown had drug it home. Inevitably, someone would soak their foot stepping into a spring hidden beneath the snow and someone would get slapped in the face from a branch (followed by cries of "Knock it off!" and grinning replies of "Who me? What'd I do?")

All this in the name of cutting down a real Christmas tree – a tradition Maritimers continue to treasure today and no doubt will for a long time. Today the experience is more likely to be at the local Christmas tree farm than in the middle of the woods. However regardless of where you cut down your real tree, here are a few tips from the Canadian Christmas Tree Grower's association.

Tree Cutting Tips

- Fir trees and pine trees maintain their needles the longest. If a spruce tree is bought locally and closer to the holiday season, it will also be fine. Check out local tree grower association websites to find places nearby to buy a tree.
- Check freshness by bending the branches...if they break its too dry. Shake the tree against the ground a few times and if a lot of needles fall off, pass it by.
- As soon as you get home, cut a few inches off the bottom of the tree (this increases water absorption) and place in a gallon of warm water. Make sure your tree stays well watered at all times.
- When you're done, recycle the tree and grind up for mulch!

Living Christmas trees becoming more popular

Increasingly, people are using living Christmas trees that are planted in large pots and later integrated into their landscaping or garden. As the kids grow along with the trees, they mark special occasions and bring back cherished memories.

Living Christmas trees are becoming increasingly popular for environmental reasons and the National Christmas Tree Association reported that during the last holiday season, "5-7% of the 32.4 million trees sold in the US were living varieties".

And for folks who don't have a place to plant their tree, they can just rent them! Special living tree rental services are springing up all across the country. For an average of \$100-180 (depending on the tree and service), a live potted Christmas tree can be delivered and set up in your home prior to the holidays and then picked afterwards.

For information on how to care for a living Christmas tree, check out <http://www.wikihow.com/Care-for-a-Living-Christmas-Tree>





GREEN WRAPPING

RECYCLE, REDUCE, REUSE TO WRAP CHRISTMAS GIFTS

By Andrea Delahunty

If you've decided to go "off grid" or maybe you are just trying to be more environmentally conscious, there are little things we can all do this holiday season to ease the burden on Mother Nature. One thing that makes a huge impact is the amount and types of gift wrapping we use. I often think of Christmas mornings past and the amount of shiny and pretty colored papers thrown around the living room, the glittered gift tags tossed aside, and the yards and yards of ribbon that somehow ended up as new decorations on the tree. Unfortunately, most of these items are not accepted by municipalities as recyclable materials and that means there are tons of paper, plastic, foil, and other materials going to the landfill.

You might be asking yourself "What am I supposed to do to wrap gifts and how do I still make them pretty?" We just have to think outside the box and may even get some help from Mother Nature herself.

The first thing that we need to consider is what to use to conceal that perfect gift until the big day. It doesn't have to be shiny paper with a perfect repeating pattern on it. In fact, with the trend towards handmade, artisan, and primitive, this is the perfect time to get back to basics.

*Rolls of craft paper are inexpensive and easy to find. You probably have some tucked away in a closet already. Break that bad boy out and get wrapping. A plain paper gives you the opportunity to be more creative. Decorate the brown paper with your own design using vegetable stamps, paint, markers, or leave it as is and make it interesting with embellishments and tags. The same rules apply with brown paper bags.

*Other papers to consider are newspapers, old maps, sheet music, comics, calendars, pictures/photographs, children's art, wallpaper samples, vintage books, etc. You can even dig into the kitchen drawers and pull out the shiny tin foil, plain parchment paper, or even waxed paper.

*Your wrapping doesn't even have to be paper. A beautiful scarf held in place with a vintage brooch, a pillow case made into a reusable bag, a dishtowel covering a homemade loaf, or any interesting piece of fabric can be used to dress up gift giving. Even old sweaters can be used to hold gifts. Cut the sleeve off an old sweater, sew up one end, and tie the other with a pretty ribbon and you have a one of a kind wine bag. A lot of us have old CD/DVD cases around the house. Add a new liner and use it to hold a gift card, money, or gift certificate. All of these things then become another part of the gift you are giving.

*How about another gift wrapped in a gift. Mittens filled with tubes of hand lotion or soap, a stock pot filled with cooking utensils, a pasta strainer filled with everything to make a nice pasta dinner, a tool box with some basic tools, a basket with baked goodies, a cake holder with baking supplies, a flower pot with gardening supplies, jars with cooking mixes, etc. You can even skip the cellophane wrap on these gifts and add just a bit of ribbon or a pretty tag.

*Have a look around the house and see what commercial gift wrap you can reuse. Gift bags, boxes, and paper you've received in the past are perfectly acceptable options but make sure they are still in good condition. You don't want anything getting broken because it fell out the side of a torn gift bag.

Finally, think about giving gift wrap and embellishments as the gift itself. Use fabric or a pillow case to make a bag to hold it all, use fabric scraps to make several small gift bags, tuck in a roll of brown paper or other paper ideas, add a bag of pine cones or cookie cutters to use as embellishments and maybe some yarn and ribbon scraps.

After you've wrapped gifts and you want to embellish them there are endless possibilities for this. The most simple is to color or draw on a plain paper. Use your imagination to draw something that reminds you about the person you

are giving to or simply write their name in a different way.

It's the personal touches that make gift giving special so add a little embellishment that says something about the person receiving the gift. If you know a Scrabble lover find some letter tiles and make a tag out of them. If a game lover is on your gift giving list add game pieces to the tag. Most of us have incomplete board games around the house that we don't want to throw out. How cute would a package of gingerbread cookies be with a CandyLand gingerbread man tied to the outside.

Lots of other things can be used as embellishments and just like the wrapping, tags and decorations can be anything you think of. Some ideas are: old post cards, candy canes, utensil on a food gift, vintage brooch or jewellery, old cards, cinnamon ornaments, clean feathers or shells, muffin cups/coffee filters, flowers, pine boughs and cones, tree bark, twigs, calendar pictures, cookie cutters, cut outs from old unusable gift boxes, natural raffia, yarn and thread, scrapbook paper, homemade ornament, paint samples, doilies, pictures of the people the gifts are for, small pieces of art you have made, buttons, salt ornaments.

Don't be afraid to try something new or something you've never seen before.

Though we all love to give and receive gifts this time of year, the ultimate savings on Mother Nature is to exchange time or service instead of a material gift. Dinner, baking, car detailing, house cleaning, barn cleaning, pet sitting, babysitting, etc. These requires no wrapping and will help out friends and family with something you know they need.

No matter what you do to celebrate the holidays this year or the gifts you give, just be sure to Think Green!

From my family to yours, we wish you a very Merry Christmas and a safe happy new year!



About the Author:

Andrea Delahunty is a wife, mother, hobby farmer, writer, and community volunteer living in Pictou County, NS with her husband and two children.



Christmas Dinner Recycling Tip

Don't throw those holiday dinner leftovers in the green bin! Just because the turkey dinner is over doesn't mean that bird is finished working for you. Whether it's a traditional turkey, a chicken, a duck, or any other bird, once all the meat is off the carcass those bones are going to give you an amazing broth with very little work.

Place the bones in a stock pot with some roughly chopped veggies (two carrots, an onion, two stalks of celery, 2-3 cloves of garlic), 8-10 peppercorns, 2-3 bay leaves, and enough water to just cover everything. Bring this to the boil and then turn it down to a low simmer, put the cover on, and set your timer for an hour. After the hour, turn the burner off and let everything cool for another 30 minutes before straining your broth into a reusable container.

You can keep it in the fridge and use it up within a couple of days or pop it in the freezer to use later on.



The Yurt Files

Building structure proves life changing

What wasn't I getting? What lesson wasn't I learning? All I could think was it must be a doozy. There in the middle of the night, standing beside the highway, cursing my misfortune, I was missing it.

Where had it all gone wrong?

It was early summer. July. The night was warm. I was racing home to Dieppe from our yurt just outside Richibucto. I'd gone to cut the grass and tidy the place up. This after working a 10-hour day as an apprentice electrician.

Quit film careers

Did I mention I was starting my life over again? Not just me, my wife too. In 2010 we both quit our careers in the film industry in Toronto to move to New Brunswick. We built a yurt outside Richibucto to serve as a catalyst for said transformation.

For the uninitiated, the modern yurt is an interpretation of those that originated with the nomadic Mongol people. The structure is completely round with the outside walls composed of intertwined lattice that stand about seven feet high. Winding through the top of the lattice is aircraft cable. Round ceiling rafters slot into the cable and connect to a round frame in the middle of the yurt some fourteen feet in the air. On top of the frame rests a plexiglass dome. The rest of the shell is composed of three layers: a cotton interior liner, R-Foil insulation and an outer vinyl layer. (Several companies manufacture yurt kits that are available for purchase. Ours came from the now defunct Yurtco in British Columbia.)

Hurricane Earl

Our intention was to live in it until we found suitable jobs and careers in the Moncton area. Scared that opportunity might not occur twice, my wife took the first job she felt matched her skills and experience. Before the yurt was complete we abandoned her to move to Dieppe. Karma hasn't been kind since. Three days after we moved out Hurricane Earl churned up the coast and blew the dome off the roof. A rescue mission had to be arranged to save it from further damage in the howling winds.

Sylvie lasted one year at her first job. I struggled to find consistent freelance writing work and eventually stumbled into the electrical trade. It became necessary to rent the yurt as a vacation property to keep ourselves afloat financially. Three years and half a dozen job changes later our struggles continued.

Checklist of absurdity

I stood at the side of the road beside my overheated car going through the checklist of absurdity that now encompassed my situation: I finished a 16-hour day, at a career I didn't like, so that someone else could enjoy my yurt. And for my efforts, the extra strain caused the radiator hose on the car to spring a leak.

I stormed back and forth beside the car, cursing into the night. The traffic whistled past, arresting my words and silencing my voice. I asked myself over and over: why didn't we stay in the yurt for one year? Or even a summer.

Would it have made that much difference? The

unfortunate truth is real, lasting internal transformation isn't something that is conferred through the construction of a green-friendly structure.

Character flaws

I had some deep-rooted character flaws that no amount of yurt habitation was going to cure. I was the one person responsible for my situation and no amount of bitching and complaining was going to change it.

After the heat (and my tempter) subsided, I wrapped the hose in electrical tape and slinked my way home. Time needed to pass before I could begin to recognize and appreciate the experience of having built such a unique structure. I needed to learn that building it was an act of love, not self-adulation.

Despite not getting much opportunity to enjoy it in the summer, renting the yurt has created a sense of community in those we choose to share it with. When we started to think of it as a chance to invite the world to our doorstep, the world responded in kind. We've welcomed people from Spain, Switzerland, France, America, Quebec and locals from New Brunswick.

Catalyst for transformation

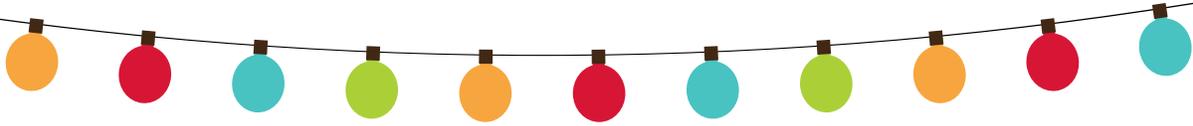
In the end, the yurt has proven to be the catalyst for transformation we intended. But never in my imagination did I expect it to happen as it has. In the time since we moved to New Brunswick to build a yurt and start our lives over again I don't recognize myself from five years ago.

(Coincidentally, that journey provided ample material for my first book "Life, the Yurt and Everything." Given that I was a man with a dream but no content, it was a fortuitous development. But all things considered, maybe a weekend writing retreat is the wiser investment.)

I'm now the published author of two books with a third, my first novel, to be released in the spring of 2016.

About the Author: Jason E. Hamilton is an author, speaker and writer who earned his chops the hard way: while killing time on film sets. His first book "Life, the Yurt and Everything" was published in 2013. Eighteen months later he released his second non-fiction book "Finding Asia." 2016 is shaping up as a busy publishing schedule: "The Prince of Acadia & the River of Fire (Mid-Grade non-fiction) and "New Brunswick: Frontier of the Canadian Dream" will be released. Jason lives in Dieppe, New Brunswick with his seven-year-old son and life partner Sylvie.





Green, White, and Christmas Lights

By Maika E Branch

Merry Christmas! Give or take a couple weeks.

'Tis finally the season when the early chill of winter has settled on the land. Everywhere you look, red, orange, and yellow is being replaced by white, green and red.

Christmas can often seem like a hassle. It's when families go to see almost-forgotten relatives, when friends exchange gifts and Santa sneaks in overnight. Preparing the house for Christmas guests is no picnic either. And it can be even harder for people who are trying to be self-reliant and/or trying to reduce their ecological footprint. Some fear that they have to restrict themselves from using things like wrapping paper, but there are lots of easy ways to replace those things and have a green Christmas. So for the sake of all that is bright and merry, here are a few:

Replant your Christmas tree: One of the most obvious ways to have a healthier Christmas is to replant your Christmas tree. Every year thousands of trees are cut down to suit as a decoration, then left to dry and dumped outside. Depending on what type of tree you may have, (pine, spruce,) there are plenty of places where a tree would help to boost the surrounding nature. But to be on the safe side, do a bit of research and find out a good place first. Other than that it is fairly simple. The question really is, why not?

Make your own wrapping: If that seems like too much of a hassle, then there are plenty of smaller-scale things that can be done. Instead of wasting money and time on buying wrapping paper, make your own out of newspapers or magazines. It's rather cool actually - a new twist on an old tradition. If it were me, I would wrap my gifts in the brain teaser pages, or the comics.

As for the gifts themselves, try not to choose something the person you're getting it for will throw out in the next year. Something handy. I'm sure it will be appreciated just as much as a new pair of socks. (Thanks a lot, uncle Fred.)

Make your own decorations: And what is Christmas without decorations? Save money and reduce garbage by making your own decorations. Natural items like pine cones, spruce boughs, and mistletoe make perfect adornments to a house. You can support your local market and buy decorations there. (Fun fact: Mistletoe is actually a type of parasitic plant - it attaches to other trees to survive!)

Recycle your own ornaments: You can recycle your own ornaments; you can lower the temperature a few degrees by dressing warmly - all the little things can make the difference to a big cause. Yes, they do help. And these are just a few examples to get your gears turning. So, if you think up of any more, spread the news. Have a Merry greener Christmas!

About the Author

Maika E. Branch is a 12-year-old published author who resides in Moncton, NB, where she attends middle school. Her first book, *Calagarmii Cliffs*, started out as a personal summer project that she wrote at the age of ten. She offers creative writing coaching for children and pre-teens and recently finished a new manuscript, *The Sisters of Serenah*, a fiction fantasy for young adults that will be on the market soon.

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Wild Food

Balsam Fir – Eat your Christmas Tree!

By Estelle Drisdelle

Using medicinal and wild edible plants is a great way to connect with the natural world.

Balsam Fir
Abies balsamea

Growing:

Duration: Perennial

Light: Full sun or partial shade

Soil: Well-drained

Zone: 3 -7

Height: Up to 27 meters at maturity

Color: Green

Parts used: needles (especially the new growth at the tips of branches)



Identification: Spruce, hemlock or fir?

Spruce needles are round and can easily be rolled between your fingers. Hemlock and fir needles are both flat and are not easily rolled between your fingers. But, balsam fir has significantly longer needles.

Uses:

Balsam fir is an aromatic tree that is high in Vitamin A and C, calcium and iron. It can be harvested throughout the year and applied externally to the skin for joint pain, warts, wounds and cuts, or taken internally as a tea for colds and flu. The needles, inner bark, and resin are used medicinally, however for home remedies using the needles is recommended.

Using Balsam Fir:

Tea Infusion

Bring water almost to a boil and remove from the heat. Crush the needles and place them in the water, cover, and let sit for 10 minutes. Strain and enjoy!

Bath

Crush the needles and place in cheesecloth and place it in your bath – this can be used as aromatherapy to lift your mood and spirit.

Balsam Fir Honey

To make balsam honey, add un-crystallized honey to ¼-filled jar of recently picked and crushed fir needles. Let sit for two weeks in a cool dark place and strain off the honey using a filter. To aid in the straining you can gently heat the jar of honey in a double boiler; just be sure the honey does not reach above 35 degrees Celsius or the beneficial enzymes in the honey will break down leaving behind only sugar.

Ecological Uses:

Balsam Fir is a short-lived pioneer species that holds the soil after a disturbance, creates shade for longer-lived trees, provides habitat for insects, and is a food source for birds.



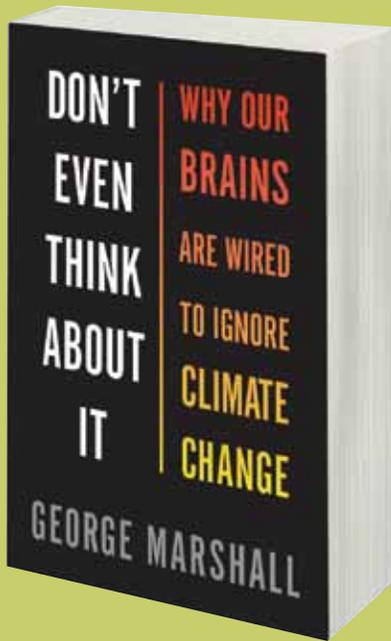
About the Author

Estelle lives on a 400-acre homestead and forest and is working to restore land, grow food and medicine, reduce energy and fossil fuel use, and create habitat for wildlife. Estelle's interest in plants, their uses, and how to grow them evolved from connecting to the natural world through hiking, working outdoors, and gardening. Estelle is also the Food and Ecology Specialist at Community Forests International, a not-for-profit based out of Sackville, NB, focusing on sustainable land use, forestry, and farming.



Book Review

By Wendy Keats



Don't Even Talk About It Why our Brains Are Wired To Ignore Climate Change

by George Marshall

(available from Kindle or with Kindle App for less than \$2.00)

Don't Even Think About It explains how the emotional brain, our peers, and our non-scientific backgrounds, combined with our psychological makeup, conspires to push climate change to the back of our minds. The author illustrates in case after case how the brain is working against us when it comes to acting on climate change. In his book, Marshall identifies alternative approaches, most importantly by refusing to regard climate change as an "environmental" issue but rather as a global issue affecting everyone on the planet. He includes narratives of personal encounters with his research subjects from all corners of the climate change debate from the oil and gas industry to environmental activities that demonstrates the climate change movement is stuck. Marshall also states the possibility of a four-degree increase in the face and quotes the world's leading scientists in what they see coming if this happens.



Sharing &

Pierrette White

At the tender age of 7, for reasons unknown, I started my own Christmas tradition of giving a surprise gift to someone who is somewhat of a stranger. For example, one year a new maintenance man, Mr. C, was hired at the building where I worked. Three times a day, he would ask someone, "What time is it?" So I decided Mr. C would be the one to receive my Christmas gift that year. However, I certainly wasn't expecting the reaction I got when he opened the box that contained a watch. Tears ran off his face, he looked at me and said: "I can't tell time, never learned!" This was Mr. C's 50th Christmas.

By the end of that week however, with a big smile on his face, Mr. C told me what the time was. And it was my turn for tears to run down my face. May you start your own tradition of giving... you'll know when the timing is right. Merry Christmas!

Lidia and Brian Branch

Every where we go in the world we buy a Christmas ornament. When the tree goes up, as we hang the ornaments we reflect on the great memories they bring back.

Wendy Keats

After moving off-grid, I began a tradition of making Christmas presents using things I found in the woods or grew in my garden. For the first few years, I was into twig furniture and made everything from beds to loveseats, magazine racks, clocks, and birdhouses. Then, I started doing wall hangings made from things I gathered in the woods like moss, fungus, oak leaves, berries, etc

A few years ago, I began giving baskets full of things I made from my garden like



Our Christmas Traditions



salsa, chow, pickled beets, spaghetti sauce, dried herbs and baking. I customize every basket with things I know they like and I love their reaction...they're far more excited about these gifts than anything I could have bought them. And the added bonus is that I don't have to go Christmas shopping!

Steven Boyce

After the many good meals with family and friends are over, the guests have returned to their respective homes, Sylvie and I like to take a few days during the holiday period to get away to our little cabin overlooking the Bay of Fundy, more specifically in the Alma area. At this time of year, the tourists have all departed and only the wildlife remains to keep us company.



Rayanne Brennan

My Christmas is not complete until I have sung back-up vocals to Elvis's Blue Christmas and done a Charlie Brown Christmas dance.

Milaine Robichaud

We gather in my parents' garage on Christmas Day night and catch up with friends and family, near and far, look back at the past year and look forward to the new.

Colleen Maguire

Since my daughter Kate is now 21 years old, gone are the days when I would read her stories from our favourite

book of Christmas stories while wearing our new Christmas pyjamas which we would wear to bed on Christmas Eve. We've kept up the tradition of the pyjamas though and this Christmas Eve we are adding a book and a small chocolate treat to take to bed with us too.

Heather Proudfoot

Five years ago, I designed and created "Christmas Conversations" books for my kids. Each page is labelled with the year, their age, height, etc., and has 30 questions on it. We fill them out interview-style with questions like "Who is your best friend?" and "What do you want to be when you grow up?"

Every year on Christmas Eve, they answer all the questions privately (so they don't get to plan their responses, and without looking at the previous year's answers) and then we read all the answers out, starting from when they were tiny.

We get to take a yearly trip down memory lane, and they'll get to watch themselves grow up in the pages of a book. :)





Sandra Phinney and son Luke MacGregor are in a celebratory mood after installing the last solar panel on January 2.

Pros and Cons of going solar

By Sandra Phinney

Kermit the frog said, “It’s not easy being green.” There are some aspects of going green that are win-win from every perspective. Other aspects come under the “No free lunch” credo. Let me explain.

In 2003, my husband Barrie MacGregor and I built our own home on the Tusket River in Yarmouth County, NS. Being located half a kilometer from the main road meant that connecting to the grid would cost \$15,000. In lieu of this, we added some extra pesos and ended up with a solar electric system.

We moved in during the winter of 2004. Barrie says, “After 11 years, the jury is still out on the economics of going solar. It’s not a cheap proposition in spite of the fact that it may be ideal for other reasons. Also, living with solar requires some management and study.” We are still learning.

The nuts and bolts of what we did

We built a “solar shack” (8x12-ft. outbuilding) to house eight deep-cycle storage batteries, a sophisticated inverter that changes DC to AC, and a 6500-watt generator to assist when the sun does not shine for prolonged periods of time. We placed four photo-voltaic 175 W panels on top. Although our electrical demands are few (2 kWh per day) four panels simply weren’t enough. So, four years ago, we added four more panels.

Our house plan is modest: one floor with a bedroom, bathroom, mudroom, and an open kitchen-dining-living-room-office-den. This is all accommodated on a 32x40-ft. cement slab on grade.

Windows provide passive solar heat

Several large windows facing south give us free passive

solar heat. The cement slab is scored and stained to look like terra cotta tiles, so the dark colour and mass of the slab promote heat storage.

Our main heat source is an airtight wood stove. Although we have in-floor heating —installed at the time of building because it was relatively cheap to do —we rarely use it as it requires triple the amount of electricity. That means using the generator at least 12 hours a day to produce the required power. Typically, this translates into approximately \$75 per week in gasoline. Also, as the water/glycol is heated by propane, that’s an additional cost although we haven’t been able to measure that aspect.

Most of the lumber used in the construction was purchased from a local sawmill. This reduced transportation/energy costs and supported local industry. The wood included 1x6 in. hemlock siding. Hemlock is native to NS; does not require painting, staining or any other treatment; will not be gnawed on by rodents; and looks great. As we didn’t use tapered boards, we got the additional insulation value of the full board.



What about major appliances?

Our hot water, fridge and stove are powered by propane



but in order to reduce this fuel cost (\$700/year) we installed a solar hot water panel, heat exchanger, and storage tank to feed into the hot water system. On a sunny day, water in the storage tank is pre-heated to 120 degrees plus—low tech, low maintenance, zip operational costs and significantly reduced propane consumption. Barrie says, “It’s a no-brainer and everyone should have solar hot water, even if you are on a conventional system.”

Although we do have a washing machine, we dry on a clothesline in the summer but when the temperature dips sub zero, winter drying is done via an old fashioned (and cheap) drying rack that we arrange in front of the wood stove.

Managing solar is costly

Once the honeymoon is over, there are housekeeping chores to consider.

Batteries are expensive (\$3,200 for our system; they lasted 10 years but recently had to be replaced) and you need to be careful not to let them go low for a long period of time. They also have to be kept topped up with water.

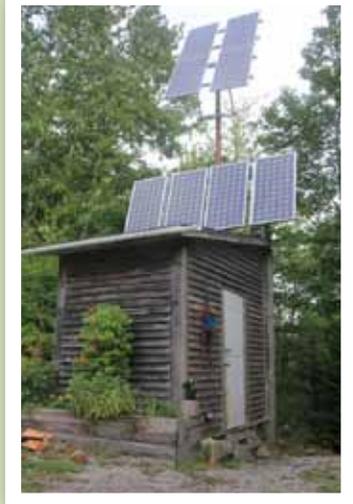
One problem we’ve had that is both aggravating and humorous (funny only after-the-fact) is that mice have twice managed to get inside the inverter and used it for a bathroom or maternity ward. It’s a costly proposition to replace circuit boards and inverters.

Limited expertise in area

As well, there is very little expertise or depth of knowledge about solar in the area. For example, we recently had to send our charge regulator to Washington State for evaluation and repair as there was no one in Atlantic Canada who could do this.

On the upside, the cost of materials is coming down. Our original panels cost \$1,400 each. Our second set cost \$800 each. Recently, Barrie saw some panels that were 50% more powerful than ours for \$600.

A huge bonus is to have a home that doesn’t hum and buzz. We got rid of the clock in our bedroom as the tick-tick-tick was deafening. Quiet takes on new meaning when you go solar.



Tip to save power

A small thing (but still significant when you are off the grid) is to make sure that the electricity that feeds items like your television and stereo system is totally off when you are not using them.

Normally, when you turn off a TV, you may think it’s off but it’s always “to the ready,” meaning that it’s still drawing electricity, even in a dormant state. It’s much like having a leaky faucet with a constant drip, drip, drip. The way to correct this is to use power bars, or, when the house is wired, to have some plugs that are switched.



Permaculture is more than raised beds; it's a system!

By Bob Ewing

In the last issue, we talked about permaculture design: what it is and the ethics and principles it embraces. A quick reminder: permaculture is “a holistic, nature-inspired, design system that draws on modern technology and ancient traditions to create sustainable human systems.”

These systems range from a single property, of any size, to entire neighbourhoods and cities. To obtain the most energy-efficient permaculture design, one must put in lots of thought, prolonged observation and interaction.

Three techniques

Permaculture is not just about raised beds, no-till gardening, or swales (a ditch designed to hold water on the land). These three techniques may play a role in the overall permaculture design. However, the design depends upon the individual site and its own particular conditions. It will take at least a full year observing and recording site interactions before creating the most suitable design.

Permaculture design is fundamentally about relationships and linkages. Thoughtful observation allows

the designer to see the site’s existing relationships and figure out how to reconnect or establish new linkages.

Companion planting

Companion planting is a well-known technique among organic gardeners. It is based on the fact that some plants perform well in close proximity to other plants. Companion planting requires the gardener to select two or more plants that are beneficial to each other and plant them close to one another. For example, beans and savory, eggplant and peppers, tomatoes and radishes with basil and carrots, all are considered to be good companion planting choices.

Since basil and tomatoes go so well together in the kitchen and complement each other in the garden, I always companion plant these two. The Internet has a number of companion planting lists and your local public library also has books to guide your choices.

Plant Guilds

Permaculture design also uses plant guilds. These have been around for quite some time and may be defined as “any group of plants that support each other while

growing near each another.”

To create a plant guild, the gardener intentionally places plants near each other so that they may help to provide for each other’s needs, thereby creating a more healthy and diverse garden ecosystem.

The best, and possibly the earliest, known guild is the Three Sisters – corn, beans and squash – whose founding is often attributed to the Iroquois. The beans grow up the corn and the squash acts as a living mulch. I put this to the test a few years ago and it worked quite well.

→ **Tip:** *Before planting a Three Sisters Guild, check the days to maturity of the plants, the beans may outgrow the corn, for example.*

Another well-known guild that can work well for a Maritime backyard is to plant a small dwarf apple tree – two actually - and a ground cover of parsley, garlic and chives. These varieties of apple trees are easy to harvest and as no ladders are required to reach the fruit, children can take part in the harvest and possibly the maintenance.

Creating Food Forests

Permaculture design draws upon an understanding of forest ecosystems and the relationships between all the elements within that ecosystem. The designer tries to mimic these relationships when creating a food garden. For example, a plant guild in the garden is modelled after the forest as it provides overstory, understory, herbaceous layers and ground cover.

This model has become the backbone of much of the permaculture design work today. It is known as forest gardening and the result is a food forest, a highly productive, high-yielding site, rich in biodiversity. The food forest can be small or cover acres. The size is not the issue; the relationships and functions of the plants is.

Note: *Next issue we will look at another way to create a highly productive garden, Hügeltkultur, which works even when space is limited.*



About the Author

Bob Ewing is a permaculture specialist and applies his knowledge of design and development to a variety of areas ranging from food security to adult literacy. He has designed gardens for individuals, schools and community and is an active volunteer in his community President of the Campbellton Food Buying Club, the Campbellton Farmers Farmers Market, the Restigouche Community Inclusion Network, and the Campbellton Rotary Club.

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What you can do about climate change

(Excerpts from New York Times article by Josh Katz and Jennifer Daniel, Dec 2, 2015)

Global climate: it's complicated. Any long-term solution will require profound changes in how we generate energy. At the same time, there are everyday things that you can do to reduce your personal contribution to a warming planet.

You're better off eating vegetables from Argentina than red meat from a local farm.

Most carbon emissions involving food don't come from transportation — they come from production, and the production of red meat and dairy is incredibly carbon-intensive. Emissions from red-meat production come from methane and while experts disagree about how methane emissions should be counted, nearly everyone agrees that raising cattle and sheep causes more warming than from raising alternate protein sources like fish and chicken (the latter of which have the added benefit of eggs).

According to researchers at Carnegie Mellon, a typical household that replaces 30% of its calories from red meat

and dairy with a combination of chicken, fish and eggs will save more carbon than a household that ate entirely local food for a full year.

Take the bus.

Scientists have determined there's only so much carbon dioxide we can safely emit. Divvying up this global carbon fund among the world's population (and making some assumptions about future emissions) gives you the average amount each person can burn per year over a lifetime — an annual "carbon budget." The current per capita emissions for Americans is about 10 times this limit.

Consider this: If you drive to work alone every day, your commuting alone eats up more than your entire carbon budget for the year. A cross-country road trip creates more carbon emissions than a plane seat. And while a hybrid or electric car will save on gas mileage, most electricity still comes from fossil fuels. If you really want to mind your carbon emissions, taking a train or a bus is

best, especially for shorter trips. Or try that Internet thing: A Skype call or Google Hangout produces very little carbon dioxide.

Eat everything in your refrigerator.

Scientists have estimated that up to 40% of American food is wasted. Food waste occupies a significant chunk of our landfills, adding methane to the atmosphere as it decomposes. Even more important, wasted food adds to the amount of food that needs to be produced, which is already a big part of our carbon load.

How can you waste less? For food shopping, plan out meals ahead of time, use a shopping list and avoid impulse buys. At home, freeze food before it spoils. If you find yourself routinely throwing prepared food away, reduce portion sizes.

Replace your gas guzzler if you want, but don't buy a second car.

Before you even start driving that new car to add to your first one, you've already burned up three and a half times your annual carbon budget. How? By encouraging the manufacturing of all of those raw materials and metals. Yet there's a break-even point at which the carbon savings from driving a new, more efficient car exceeds the carbon cost required to produce it. For example, on average, trading in a 15-mile-per-gallon S.U.V. for a 35-m.p.g. sedan offsets the extra manufacturing costs within two years.

Buy less stuff, waste less stuff.

It's not just car manufacturing that adds to carbon emissions. Other consumer goods can have a huge impact: Making that new MacBook Pro burns the same amount of carbon as driving 1,300 miles to pick it up in person.

At the other end of the product life cycle, reducing waste helps. Each thing you recycle is one fewer thing that has to be produced, and reduces the amount of material that ends up in landfills. But the recycling

process consumes energy as well, so — depending on the material — it may not be as helpful as you might think. Recycling a magazine every day for an entire year saves less carbon than is emitted from four days of running your refrigerator.

It's better not to consume the raw materials in the first place, so you may want to think carefully about whether you're really going to use something before you buy it.

Of course, these individual choices are all small measures. A sustainable solution that avoids severe damage to the planet will require fundamental changes in the global energy system: transitioning from fossil fuels to renewable energy and sharply reducing the number of cars that run on internal-combustion engines. Advocating public policies that support the development of clean energy and efficient transportation is probably the most climate-friendly thing you can do. But cultural and behavioral change can be part of the solution as well. Might as well start now.



Must-Have Off-The-Grid

Christmas gift ideas

Are you looking for some practical, sure-to-be-loved gift ideas for all the off-gridders, modern homesteaders, self-sufficient living fans, and preppers on your holiday list? Maybe you're just looking to give yourself a practical gift of self-reliance this Christmas season...

Either way, there are a few really neat gifts this year that anyone who lives an off-grid lifestyle in any way, no matter how big or small, will love to receive. These gifts won't end up in the landfill or be returned for something else, and there's something for every price range and budget. Best of all, they will keep giving and giving to the recipient throughout the coming year.



Pocket Power Plus

This is a handy little personal, portable backup power unit. You can charge all of your electrical devices remotely with the Pocket Power Plus. Use it during emergencies, or "just because." It's great for travel. It has 16 different kinds of adapters, so there's no popular electronic gadget this device won't be compatible with. It will even jump-start a car! Includes a USB charging port also. Small enough to fit in your pocket or purse.

Makes a great gift for the off-grid type who still likes to stay connected with their digital devices. Perfect for teens, college students, camping enthusiasts, business travelers, and the person who has one of everything. (We bet they don't have a Pocket Power Plus!)



Hot Water Rocket

With the Hot Water Rocket you can make boiling hot water, anywhere, anytime. No power needed, whatsoever! This little gem is perfect for campers, outdoor enthusiasts, or just to have on hand for emergencies.

It's easy to use. Simply fill the interior vacuum tube with approximately one pint of water. Unfold the two parabolic reflectors, and position the Hot Water Rocket so that the reflectors face the sun. That's it. In no time at all, you'll have piping hot water. No "go-bag" should be without one.



Microgreens Kit

Got a gardener, hobbyist, educator or foodie on your Christmas list? Someone keenly interested in health and nutrition? Need to buy a little something for the grandkids or for the special children in your life? Look no further – this is the perfect gift for each of them.

If I had to pick just one word to describe the Microgreens Kit, it would be ... FUN! Microgreens are fun and easy to grow. They're nothing magic – microgreens are simply seedlings. More mature than sprouts, but smaller than baby greens. You can grow them

on a kitchen counter or on your windowsill with no mess and no fuss. Harvest them within 10 to 14 days, when they're about one to three inches high. Chefs love them because they add color, flavor and texture to almost any dish. But don't let the small size fool you. They pack an incredible punch. Not only do they taste delicious, but they're an ideal survival food packed with vitamins and minerals.

Sprout Sampler Kit

The Sprout Sampler Kit is a lot of fun, too.

It's similar to the microgreens kit above, except you harvest your seeds at the sprouting stage. Sprouts are healthy and delicious and will allow your family to eat fresh, homegrown greens even in the dead of winter. Sprouts taste delicious on homemade pizzas, sandwiches and in salads. Use them to top your casseroles and hearty soups this winter.



The Sprout Sampler Kit makes a great gift for gardeners and foodies, too. (If you really want to make them happy, or they've been extra-good this year, buy them one of each kit!)

Now, for the person who has everything... we bet they don't have this ...

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The Quiet Death of the Oil Sands Index ETF

By Timothy Nash, The Sustainable Economist

Nobody noticed it. There were no talking heads on TV. No tweets. No memes. Investors quietly sold their shares into cash, and a notice was put up on the website.

Nobody noticed when the iShares Oil Sands Index ETF quietly died. Expect for me, of course, because I'm The Sustainable Economist. You see, the Oil Sands Index ETF is my benchmark for the energy sector in Canada. It's what I use to show people how renewable energy is a better investment than the tar sands. And oh my, how ugly that chart looks right now.

Am I allowed to smile while writing this? Sure, my girlfriend tells me I look cute when I'm smug.

Potential partner

I first discovered the Oil Sands Index ETF in 2009 as I was starting my company and brainstorming a name. I was looking for a sweet URL, and googled all sorts of combinations for "sustainable investment." Imagine my impression when I found a company called Sustainable Wealth Management. I thought I'd found a potential partner. To my surprise, it turned out that this firm created and manages the Oil Sands Index. It was more ironic than a hipster listening to Nickelback.

In 2006, iShares licensed the rights to turn Sustainable Wealth Management's Oil Sands Index into an ETF that investors could buy and sell on the market. But with a pitiful performance and little demand today, iShares made the business decision earlier this year to kill the ETF. As of September 4, 2015, the iShares Oil Sands Index ETF is dead and iShares will no longer be paying licensing fees to Sustainable Wealth Management.

There won't be a funeral, but I'm going to raise a glass tonight. The world is a better place without this ETF.



About the Author

Tim Nash, The Sustainable Economist, teaches ordinary people how to invest their money online in sustainable investment funds. To book a free consultation, you can reach him at nash@sustainableeconomist.com or check out his website for more information at www.sustainableeconomist.com



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