

## Water and Ice

**Author :** bluseas

**Date :** December 10, 2016



**Image:** *Hoar frost on moss.*

Originally, when I started out with the idea for this journal entry, I was going to tell about our concepts for microhydro on our site, but ... water froze and became ice, and the story developed of its own accord.

In the summer, with our south facing slope, solar works very well in supplying our electrical needs. But in the winter, and particularly in a winter as cloudy and wet as this one has been, solar is not so

good. We were expecting this, and had been hoping that we might set up a small scale microhydro system on the creek close to our cabin. This seemed like the perfect complement to solar – in the summer, the creek dries up, but we have good solar energy then, while in the winter, when there is little sun, the creek runs full and could generate a decent amount of electricity.

So I spent quite awhile researching different microhydro options. There were some issues. Most companies making microhydro turbines won't sell you anything unless you guarantee that your site will meet certain criteria. Seasonal creeks don't cut it. They are afraid that if they sell you something that is supposed to generate so much energy, and then your creek runs dry, you might complain about the quality of their product. I mean, duh! Like I know that the turbine won't produce electricity when the water isn't running. That's why we have solar panels. Most companies also want either a relatively large flow of water or a relatively big head (vertical drop from the intake to the turbine). Several of the companies I contacted told me that their units were not suitable for our flow/drop situation. One company had a unit that would work, but due to the seasonal nature of the creek, wanted us to put in quite a large intake line that would have to go a significant ways up the creek. This started to look like way more \$\$\$\$ than we had originally planned, and with the kitty getting a little emptier these days, we had to shelf the microhydro project temporarily.

On a positive note, I'm pretty sure we can get the power we want from our stream during the season (winter) when we need it. Part of the misunderstandings with the manufacturers of microhydro turbines is that our electrical needs are small, much smaller than the "average" household, as we have no refrigerator, freezer, dishwasher, electric stove, hair dryer, electric heaters, etc. In fact, all we need is enough electricity to run a computer, a VHF radio, a small CD/mp3 player, a couple of energy efficient lights, and charge our cell phone and tablets. For our big electrical needs (which are few), we run the genset. Ken and I are working on some do-it-yourself turbine designs which can be made fairly cheaply using the motor out of an old washing machine. So this project falls in the "to be continued" category.

So, in the meanwhile, we have been optimizing our electrical consumption, since, when the sun don't shine, we have to run the genset to charge our batteries. One of our biggest electricity "hogs" is the water pump which supplies the cabin with water. At the moment, our cabin plumbing is still very experimental, and none of the outdoor water lines have been insulated or buried. We knew that this would be a problem once the cold weather arrived, so we needed to take the pump out of the system, and drain it to protect it from freezing. Of course, this would leave us without water ... except what can be hauled from the creek in a bucket. However, before things got totally frosty, we had an epiphany. Our well is just slightly too low down on the slope to feed the cabin by gravity, but with the pump out of the system, why not just run a line further up the creek, which is running full volume, and use gravity to supply us with water until the pipes freeze up? Microhydro by proxy!

And it worked great ... until this week when everything froze up solid. So that's the ice part of the

## Journal

Our Adventures

<http://oceanecology.ca/wp>

---

story. Looks like we're back to buckets until the spring, but maybe next year we'll get the pipes buried (once we have the system totally figured out) and have running water for Christmas.