

# Watt's Happening?

Written by Don Pettit  
for Peace Energy Cooperative, Dawson Creek, BC Canada  
www.peaceenergy.ca ph 250-782-3882



## Myth Busting: *where do the electrons go?*



*The electricity produced by Bear Mountain Wind Park (visible in this photo along the distant horizon) stays right*

*here in the region, powering all of Dawson Creek in a light breeze and most of the South Peace in a strong wind.*

**I**t's rare that we get to see our electricity being made. Plug something into an outlet, and there's the power. The rest is mystery.

In the south Peace Region of BC, we have it good. We have wind power. Right from our own back yards we can see the blades turning, and the faster they turn the more green electricity is pouring into our area. We can see our electricity being made.

But how can we be sure its not just "disappearing" into the grid, as many people so often say? How do we know we actually get to *use* these green, wind-generated electrons?

(Note: the following description of how electricity flows in a grid has been confirmed by conversations

with BC Hydro experts, a friendly physics teacher . . . oh, an electrician too.)

### HAPPY LITTLE ELECTRONS

Electricity is composed of tiny bundles of energy called "electrons." It is conceptually accurate (although a technical simplification) to think of electrons as flowing through a wire like water through a pipe.

You can have twenty closed taps on a pipe, but water will flow only to and through the tap that is open, and it will flow out of the closest tap first. Electricity behaves much the same way.

In the case of our local Bear Mountain Wind Park (with a peak output of 102 million watts), electricity generated there flows down a power line from the ridge to the Hart Highway substation. From there it has a choice of going west to Chetwynd (not likely, since that area is now being powered by the Dokie and Quality Wind projects), or east to Dawson Creek.

Since Dawson Creek is the nearest big load (open tap), the electricity from Bear Mountain will flow there first, while powering up everything it encounters on the way: farms, ranches, etc.

After powering Dawson Creek and area, left over electrons spread out like sap through the leaf of a tree, with the grid being the veins in the leaf. Each load, no matter how large or small, is an open tap that electricity from Bear Mountain will flow to. The stronger the wind blows, the bigger the leaf becomes, spreading wind-generated electrons out across the region.

Thanks to the laws of physics, electricity goes directly to where it is needed exactly when it is needed. It happily turns night into day, gives us instant worldwide communication, toasts our bread, keeps our iPhones and iPads happy, runs our computers, purifies our water, and someday soon it will charge our electric cars. Magic.

### **ENERGY INDEPENDENCE FOR THE PEACE!**

To power all of Dawson Creek's homes (population

about 13,000), street lights, water treatment plants, communications towers, municipal buildings, businesses, arenas . . . pretty well everything, requires about 20 megawatts (20 million watts) at peak load. The 34 wind turbines on Bear Mountain produce that much in a nice breeze; five times that in a strong wind.

Averaged over the year and accounting for maintenance down time and low-wind days, Bear Mountain Wind could easily power three Dawson Creeks year around.

Wind parks more than about 100 km apart are usually in different wind regimes: when the wind is not blowing in one, it will be blowing in the other. So pair Bear Mountain Wind Park with Quality Wind near Tumbler Ridge, and we have a region flooded with wind power almost 24/7, 365 days a year.

Looking at the South Peace region as a whole, it is now safe to say that we are essentially electrically independent from the rest of the planet, powered entirely by wind-generated electrons, home-made right here where we live and work, with no pollution and no fuel costs. More magic.

So rest assured, oh lucky Dawson Creek, Tumbler Ridge and Chetwynd area residents, that when you see those blades turning even very slowly, you are living in British Columbia's first wind-powered cities, and if you live in the South Peace, you are in BC's first wind-powered region.

I think that's something we can all be very proud of.

