Renewable Energy NEWS

Climate Change & Energy in NB

Spring 2007
Volume 4 Issue 1

Energy Empowerment Workshops

The Falls Brook Centre is hosting a series of workshops this summer for people looking to learn more about renewable energy technology. The first two day workshop is scheduled for June 16th and 17th at the Falls Brook Centre in Knowlesville, New Brunswick. Lunch is included and overnight accommodations available. Students half-priced.

For more information about pricing or to register:
Call: 506-375-4310, or Email: technology@fallsbrookcentre.ca

Falls Brook Centre

The Falls Brook Centre helps Canadians and people around the world make the transition to sustainable living.

Check out one of the workshops to learn more about how you can use renewable energy in your home or business.

More information:

www.fallsbrookcentre.ca/technology/

CONTENTS

- **Noel Dekking**

It seems like the environment is becoming a bigger topic in the global and Canadian media every day. Something I often hear when talking to people about the issues is that they genuinely want to install renewable energy systems but don't know how. They want the government to invest in things like wind, solar and hydro-electric power, but don't know the pros and cons.

In this issue of Renewable Energy News, there are three articles that spell out some of the lessons learned from renewable energy projects outside of Canada, as well as policies to avoid and practices to embrace on both a government and personal level.

For people who are looking a more practical hands-on approach to renewable energy, the Falls Brook Centre will be hosting a series of workshops by energy expert Brent Crowhurst. These workshops will be beneficial no matter how advanced or basic your understanding of renewable energy.

The workshops will cover a range of options including solar electric, wind power, bio-fuel energy, and green heating.

Solar photovoltaic array– a clean renewable alternative

More information on these workshops is available by contacting our staff at either the phone number or email found above.

It seems like children are always a step ahead of their parents when it come to technology these days. It is important that our education programs are providing our children with the most up to date information and technology, especially regarding the future of energy production.

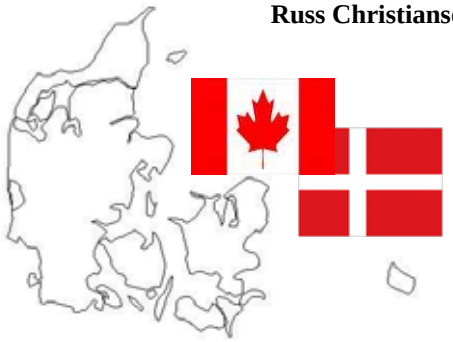
With this in mind, the Appropriate Technology department of the Falls Brook Centre has been creating the Energy Experience program for the youth of New Brunswick.

The program has three sections: Education Kits - which enable students to actually build small renewable energy modules. A Provincial Design Competition - that will challenge high school students from around the province to come up with renewable energy solutions. And Experience Visits - where students will actually get to come out to the Falls Brook Centre for educational workshops.

We hope that you find the articles thought provoking and informative. If you are looking to get involved and informed, we are a good place to start.
www.fallsbrookcentre.ca/technology/

Lessons from abroad

— Brent Crowhurst & Russ Christianson



Middelgrunden: The latest and largest wind power co-operative in Denmark, just off the coast of Copenhagen. More than seven thousand members own this 40 MW offshore wind park together with local utilities. It was inaugurated in 2001.

Arriving in Copenhagen, Denmark's largest city, one notices a few things that are different about Danish society. From the air, one can be see numerous wind turbine generators while on the ground the bicycles, pedestrians, and a very modern public transit system take priority over private automobiles.

Power generation is distributed and entire cities are heated using solar thermal energy and waste heat from thermal electricity generation. There are test sites for innovative ocean wave energy systems and Farmers are already generating biogas to heat their farms and sell electricity to the grid.

After the oil crisis of 1973, a grassroots movement started in Denmark that shifted their national energy priorities. At the time, Denmark was almost completely dependent on foreign oil for heating, transportation and electricity generation. Like many countries during that time they heard a wake up call for change. With characteristic intelligence and pragmatism, they chose to leave the nuclear option behind in favour of conservation and renewable energy.

Falls Brook Centre Renewable Energy Program Coordinator Brent Crowhurst spent five months this past winter in Denmark at the *Nordic Folkecenter for Renewable Energy*.

The Folkecenter was founded in 1983 in the north-west region of Thy. Although located in a poor rural area of the country, the Folkecenter is a world leader in developing prototypes for commercial applications of renewable energy.

A question most visitors to the center ask is: "How did Denmark become a world leader in wind turbine technology and installations?" The story, as told by Folkecenter Head of Information, Jane Kruse and Executive Director Preben Maegaard, goes something like this:

Young people and women were very vocal against nuclear energy. The momentum of the movement built steadily through the seventies and early eighties. In April 1985, bowing to public pressure, the Danish Parliament made the decision to not build any more nuclear reactors. This was one year before the core meltdown at the Chernobyl nuclear reactor in Ukraine.

The Danes also worked for positive alternatives. Women politicians created a coalition against nuclear energy and co-operated across parties to pass legislation that supported renewable energy. This strategy was possible because Denmark's proportional representation voting system results in a higher percentage of women elected to Danish parliament. One of the legacies of this grassroots feminist movement is a landscape dotted with 5,300 wind turbines. Everywhere you travel in Denmark there are wind turbines on the horizon.

Most of Denmark's wind farms were erected by local co-operatives and individual farmers.

In 1980, the Social Democratic government offered a thirty percent subsidy for new wind energy installations. This provided the Danish wind industry the start-up support needed to build itself into the world leader. The industry began from the bottom up and created 20,000 jobs in the process.

In 1988, a newly elected Liberal-Conservative government cut the subsidy in half. However, the return on investment in wind energy continued at fifteen to twenty-five percent. This is because of three important elements of the Social Democratic party's policy for community-owned wind energy:

1. The right for generators to connect to the electrical grid

2. A legal obligation to purchase the energy at a fair price

3. Long term contracts guaranteeing a reasonable return on investment.

In 1993, the Social Democrats were again elected and held office in various coalition governments until 2001. This was a period of incredible wind energy growth in Denmark, during which production more than tripled from 1,200 to 4,100 GWh. Eighty-five percent of the turbines were owned by local co-operatives and individual farmers.

(*Continued on page 3…*)

"The Folkcentre believes that Canada is in a special situation at this moment…"

Lessons from abroad...

(Continued from Page 2)

By 2001, wind farm production was providing twelve percent of Denmark's electricity, enough for 1.2 million Danish households.

However, when the Liberal-Conservative coalition government was re-elected in 2001, they pulled the plug on wind energy by saying that it had to stand on its own in the "free market", the same "free market" that subsidizes fossil fuels with tax breaks and the externalization of health and environmental costs.

In 2004 only five wind turbines were erected on Danish soil.

The Folkecenter believes that Canada is in a special situation at this moment, like Denmark after the 1970s energy crisis, or in Germany after Chernobyl.
But as Preben Maegaard says, "renewable energy development will only happen with the right legislation."
There is strong opposition to Denmark's current energy policy which discriminates against community power in favour of big companies. The very reason that the Danish wind industry became an international success – the growing domestic market, strong public support, and locally owned wind co-ops – has been abandoned by the Liberal-Conservative coalition government.

Denmark and Canada have a common history of defending our culture against a larger neighbour to the south. Like Canada to the United States, Denmark is a mouse to Germany's elephant.

When it comes to renewable energy, Denmark was the world leader until the start of this new millennium, and they have inadvertently passed the torch to their large neighbour to the south. Germany has taken up Denmark's most successful renewable energy policies and improved them.

In 2001, Germany's new red-green coalition government (Social Democrats and Greens) legislated the phase out of their nation's 19 nuclear reactors. It also introduced legislation similar to Denmark's, including eco-taxes on fuel, energy conservation and efficiency measures, and renewable energy incentives. Germany is unquestionably the renewable energy global leader. In Preben Maegaard's words, "Germany's renewable energy policy is a miracle!"

Canada has a proud heritage of working together to supply people and communities with their needs. We should use the inspirational Danish and German stories as reminders that grassroots initiatives can become national success stories, cooperative mice can show slow moving elephants a better path forward, and progressive government policy can play a huge role in the transition to a sustainable, clean energy future.

Brent Crowhurst is the Renewable Energy Program Coordinator at Falls Brook Centre.

Russ Christianson is the President of Rhythm Communications and has been involved in the development of over forty co-operatives in Ontario over the past two decades.

The Bio-fuel Buzz

— Raphael Shay

The bio-fuel buzz is in the air. With steady press coverage and a doubled federal budget for bio-fuels, one could be inclined to think this technology will solve our climate change crisis and extend the life of our dwindling petroleum reserves.

It is an attractive thought - that human ingenuity will allow our present way of life to continue unfettered. When looking at history, it is true that inventions have made life easier for some. In 1900, Mr. Diesel, inventor of the diesel engine, ran his new diesel engine on peanut oil in the hope that independent craftsmen could resist competition from large industries' expensive and energy-inefficient coal power.

Bio-fuels were used more than one hundred years ago. So why did we stop? One answer is that the energy monopoly pushed out unwanted competition.

An additional complication today is that petroleum discovery is slower than our consumption. *British Petroleum*, for example, gives us less than 35 years until we run out of oil while the *US Geological Survey* has predicted 27 years. This is at current consumption levels, but consumption levels continue to rise. (More information available at: www.peakoil.net).

Bio-fuels may slow down our consumption of petroleum but the fact remains that petroleum will run out. This is why everyone, especially the energy monopoly, is seizing the bio-fuels opportunity. However, bio-fuels complicate life for energy monopolies in the same way that they may help create widespread energy self-sufficiency. Bio-fuels are a product with highly accessible resources, and there are various kinds of them. Vegetable oil can be used in diesel engines with some pretty simple modifications (www.elsbett.com).

This oil can also be transformed into biodiesel and used without any modifications to a diesel engine. Ethanol can be used in gasoline engines and has been used as fuel in Brazil since 1973. While it is currently made from sugar, people are also placing big bets on its production from organic waste.

Brazil currently uses sugar cane, with its high sugar content, to make ethanol and then uses the dried stalks as fuel for heat. Unfortunately, it is not always that easy. In Brazil's case, ecosystem destruction is a main concern. The United State's ethanol production from corn is also a good case study. Serious limitations include substantial chemical and fertilizer inputs, soil degradation due to a removal of all nutrients, as well as the long-distance shipping and use of coal powered plants in the processing of ethanol.

(*Continued on page 4*…)

Mars Hill:
The Highs & Lows
— Noel Dekking

The Mars Hill wind energy project, picture here, provides a good example as to why community involvement in renewable energy initiatives is essential. Mars Hill is located just across the border in Maine, but is also within viewing distance from places like Knowlesville, New Brunswick.

The privatized project is completely owned and operated by UPC Wind Management LLC. With the use of 28 wind turbines it can create up to 45 Megawatts of electricity, enough to power around 45,000 homes.

The offset of Greenhouse gases, pollutants and other environmental benefits are positive traits of any wind power system.

The problem is that some of the residents in the area have been complaining that they are not benefiting from the project and that they were never consulted about the project before it was approved.

One resident said “I totally understand the "bigger good" of wind power, but it certainly would have been less of an impact on the people who do live here to have situated these things on a different mountain ridge that already has cell towers that doesn't have year-round residences on it.”

As this resident understands, wind power is part of the solution, but people need to be taken into consideration and informed about the projects going on around them. To put it in perspective, somewhere around 10 to 15 people were affected by the Mars Hill project, and a representative said that UPC Wind is currently in consultation with the community about the issues. The hydro-electric damn project on the Yangtze River in China forced the displacement of 1.5 million people.

Maybe these kinds of sacrifices are worth it for renewable energy production, especially if it means that we can avoid the massive relocation and destruction predicted by scientists to be some of the results of global warming. Maybe even better, however, is that there are ways to create renewable energy projects that include community benefits and input.

The way to do this is to organize community based renewable energy projects where local people help design, fund, and implement projects. If a local cooperative based system is embraced in Canada, then we can avoid situations of animosity between big corporations and local residents.

Even better, as stakeholders in the projects, local residents only have to live with the decisions they make themselves; decision, for example, like saving the world from global warming.

Noel Dekking is a renewable energy intern at the Falls Brook Centre.

The Bio-fuel Buzz...

(Continued from Page 3)

Bio-fuels are also part of the problem when they threaten the existence of farmers and locals. For example, Columbian farmers are being kicked off their land to make space for industrial palm oil production for bio-diesel.

It is a positive that governments are finally investing in the renewable energy future, but there is a right way and a wrong way of doing this. Using Genetic Modifications (GM) to create new bio-fuel plants, which are not fit for human or animal consumption, can be a dangerous move. Contaminating edible species for the sake of mobility seems short-sighted. Most simply put, we don’t have enough land to produce bio-fuels that could replace our current fossil fuel consumption levels.

If Canada’s government is really committed to action, throwing money at the bio-fuel industry is not the answer, because it does not look at where and how the bio-fuels are being produced. Adding a carbon tax would more accurately represent the cost of our behaviour and would make “good” bio-fuels and energy efficiency very attractive options for citizens and businesses. With the extra revenue the government could even invest in public transportation.

Contact Falls Brook Centre:
125 South Knowlesville Road
Knowlesville, New Brunswick
E7L 1B1 Canada
Phone: 506-375-4310
Fax: 506-375-4221
www.fallsbrookcentre.ca