

October 2008

# CAUSE

**CITIZENS  
ADVOCATING the  
USE of  
SUSTAINABLE  
ENERGY**



## ANTI-NUCLEAR ACTIVIST COMING TO CALGARY

*- Renowned social activist and author - Dr. Helen Caldicott - will explain to Calgarians why nuclear power is not the answer" to Alberta's electricity needs.*

Dr. Helen Caldicott - once described as "the single most articulate and passionate advocate of citizen action to remedy the nuclear and environmental crises" - is coming to MacEwan Hall, University of Calgary, on October 7th to inform the public about the medical hazards of nuclear power among other nuclear issues.

This visit to Alberta is being organized by **CAUSE** - **C**itizens **A**dvocating the **U**se of **S**ustainable **E**nergy - with sponsorship from Mountain Equipment Co-Op, The David Suzuki Foundation and private donors. CAUSE invited Dr. Caldicott to Alberta because of the proposal by Bruce Power to build four 1100 megawatt nuclear reactors in northern Alberta. The province has yet to decide if this project will go ahead.

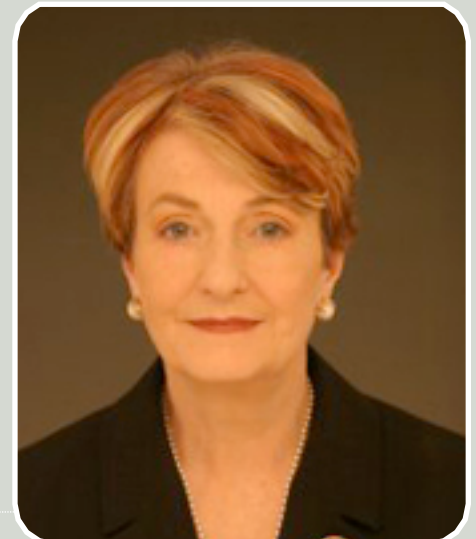
Dr Caldicott is planning to speak to a private audience of medical practitioners in Calgary the evening prior to her public talk October 7th and then she will speak at another public gathering in Edmonton on October 8th.

A life long academic and humanitarian, Dr. Caldicott received her

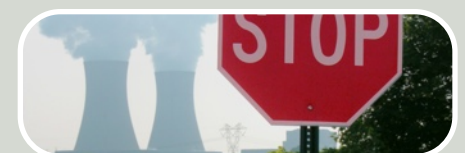
medical degree from the University of Adelaide Medical School. She founded the Cystic Fibrosis Clinic at the Adelaide Children's Hospital and subsequently was an instructor in pediatrics at Harvard Medical School and on the staff of the Children's Hospital Medical Center, Boston, Mass., until she resigned to work full time on the prevention of nuclear war.

The Smithsonian Institute named Helen Caldicott as one of the most influential women of the 20th Century. A Nobel Peace Prize nominee, Dr. Caldicott has written for numerous publications and has authored seven books, including: The New Nuclear Danger: George Bush's Military Industrial Complex and, her latest - Nuclear Power is Not the Answer - a detailed response to the nuclear industry's claim as the "clean and green" solution to the world's energy needs.

Please plan to attend what is sure to be an informative and eye opening talk on the subject of nuclear energy.



**Dr. Helen Caldicott** - speaking at MacEwan Hall, University of Calgary, October 7th, 7:00 PM. Her talk is open to the public and admission is free. For more information email CAUSE at [nuclearfreealberta@gmail.com](mailto:nuclearfreealberta@gmail.com)



## WELCOME TO THE FIRST EDITION...

of the CAUSE Newsletter! We are excited and pleased to be bringing you a brand new source of information and dialog. It is our intention to make this and future editions of this newsletter informative, timely and something that will motivate you to continue the fight to prevent nuclear power from gaining a foothold in our province.

Alberta belongs to Albertans - not to big business. The citizens of Alberta should decide what they will allow in their province. The time is critical to make informed choices about nuclear power before large corporate entities make them for us. We can make a difference on this issue - with your effort.

We concluded that the electronic newsletter format would be an excellent way to start communicating with our members and to start building a new and important dialogue. To create this conversation it's crucial to stay on top of what is happening, providing facts and refuting myths about nuclear and sustainable energies. To do this we will include news and information from media reports, environmental groups and from expert proponents of nuclear energy. We want you to respond to the information with your comments and questions so that we can begin addressing your concerns about nuclear power and sustainable energy.

CAUSE also hopes that through this dialogue you will identify more with this grassroots movement and become better able to speak to the nuclear issue with your friends and

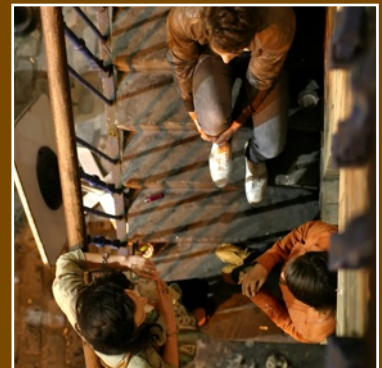
family, as well as challenge those who will tell us Alberta needs nuclear power to maintain our economy, our quality of life or to solve global warming. CAUSE and many others believe all of these ideas are false and in the coming issues you will learn why we think they are not only false but could very well be dangerous for Alberta and its citizens.

We are at a crossroads in our evolution as a province. The issues of climate change, rising energy costs and declining conventional oil and gas resources are forcing us to make serious energy choices that will have far reaching effects for generations to come. The nuclear power industry - a dormant business for many years - has in a final act of desperation latched on to the climate change problem by portraying itself as the saving grace for emission-free, clean energy. There are many reasons why this is either not true or so marginal to be insignificant in the grand scheme of things. We will begin to present the facts as we understand them starting in this, the first issue of the CAUSE newsletter.

Remember, we welcome your comments and questions. More than that, we encourage you to actively join this fight as a citizen activist with the rest of CAUSE. Your participation is essential to stopping nuclear power from invading Alberta. Don't forget to come out and hear our next guest speaker Dr. Helen Caldicott in early October, its sure to be informative and entertaining. We look forward to seeing and hearing from you.



## WHAT YOU CAN DO TO FIGHT NUCLEAR POWER



Call or write your MLA and tell him or her your view on nuclear power.

Talk to your friends and family and let them know about this issue.

Join CAUSE and become part of the growing coalition of Alberta citizens fighting nuclear power & promoting sustainable energy instead.

## "PRAIRIE ATOMS"? OR "PRAIRIE WIND"?

by Elena Schacherl

Earlier this month, the Canada West Foundation released a public policy paper that tries to make a case for Alberta and Saskatchewan embracing nuclear. Duane Bratt, a political scientist who teaches at Mount Royal College and author of the paper, entitled "Prairie Atoms: The Opportunities and Challenges of Nuclear Power in Alberta and Saskatchewan," not only recommends building nuclear reactors in the Western Prairie Provinces, but would also like to see uranium mined in Alberta, and processed and enriched in Saskatchewan. Over-sized, first-of-their-kind nuclear reactors for both Alberta and Saskatchewan are part of the plan. Not missing any stage of the complete nuclear fuel cycle, Duane encourages the Prairie Provinces to get into the nuclear waste business by reprocessing spent fuel.

What is intriguing about this new report is that Duane actually recognizes a number of very significant issues associated with nuclear power including nuclear safety, nuclear waste, proliferation and terrorism, finding qualified workers, inadequate regulation of the nuclear industry, high costs and heavy government subsidies. "Prairie Atoms" dismisses all of these "challenges": Nuclear accidents? Just an irrational misperception, but nothing that can't be solved by spending millions on a "public education campaign". After all, these new Generation three reactors, such as Atomic Energy of Canada Limited's CANDU ACR-1000, are safer than the existing reactors (that is unless they end up like the Chalk River Maple reactors, scrapped because they can't get the design to work.) Nuclear waste? Let's just keep throwing millions more of taxpayers' dollars into research and hope that in a few more decades we'll find a solution.

What makes "Prairie Atoms" particularly interesting is that Duane Bratt took quite a different position on nuclear power 10 years ago in an article published for the Spring-Summer 1998 edition of The Nonproliferation Review called "CANDU or CANDON'T: Competing Values behind Canada's Nuclear Sales." This earlier article is quite critical of the nuclear industry, lamenting the sale of "proliferation-risky CANDU reactors" to countries with questionable human rights

records such as Romania, Korea and China. Duane even goes on to cite the 1977 U.S. Ford Mitre report that identifies Canadian CANDU reactors as actually "more suitable for reliable [nuclear] weapons" than other types of reactors. ("CANDU or CANDON'T", p. 3.) Yet in "Prairie Atoms" proliferation concerns are downplayed, based on information provided by Jeremy Whitlock of the Canadian Nuclear Association, an organization that serves as the public relations arm of the Canadian nuclear industry.

Another nuclear challenge "Prairie Atoms" recognizes is the large amounts of taxpayers' money that is needed to make the nuclear industry viable. Duane himself in his earlier paper tells us that from 1952 to 1997, federal subsidies to Atomic Energy of Canada Limited (AECL) were more than 4 billion. This doesn't take into account the 9.5 million dollar grant given to India nor the 4.5 billion dollars in loans to third world countries. Duane identifies known losses of 320 million to Romania and another 130 million to Argentina. These losses include \$12 million dollars AECL used to bribe officials in Argentina and Korea. And how is the economic performance of the Canadian nuclear industry described? Duane quotes Maclean's magazine: "[if] we have to loan people money at subsidized interest rates to buy CANDU at prices below cost and then bribe them to do it, how great is the accomplishment?"

In "Prairie Atoms" Duane asks, "Would government funding that helped to diversify the economy by bringing in higher paying jobs be wrong?" The problem is that investing in nuclear power is just bad business. Even the Fraser Institute questions whether the federal government should be risking Canadian taxpayers' dollars and incurring the potential liability associated with designing and building first-of-their-kind reactors, specifically the ACR-1000 being proposed by AECL. In the context of the current crisis in the world economy, for our government to embark on such a high risk venture makes even less sense.

A March 2008 article in the Fraser Forum written by Bryne Purchase, "CANDU or no CANDU? The future of nuclear power in Ontario" identifies the "conflict of interest inherent in the federal government being both the owner of AECL and its safety regulator." Regulation of the nuclear industry is one of the challenges "Prairie Atoms" also recognizes: "... the firing of Linda Keen potentially jeopardizes the credibility of CNSC [the Canadian Nuclear Safety

Commission]. Duane goes on to say, "Based on this precedent, if, in the future, the CNSC declares that nuclear facilities in Alberta and Saskatchewan are operating in a safe fashion, how can the public be sure that this is not due to political interference as opposed to expert judgement?" ("Prairie Atoms, p. 15.) The answer, of course, is that they can't. But Duane goes on to dismiss this challenge as well. The federal government commissioned Talisman international to review the source of the debacle at Chalk River. Criticizing both AECL and the Canadian Nuclear Commission, Talisman has made a number of recommendations. Duane's confidence in this report as solving the problem is over optimistic to say the least.

In discussing regulations, Duane suggests that "pre-licensing" of new reactors may be the answer. He says we should learn from nuclear regulatory bodies in other countries such as the United States. Well, this is what we can learn from the United States about pre-licensing of a third generation reactor. A Westinghouse reactor, the AP1000, pre-licensed to be built in North Carolina, is now looking at long delays due to "escalating design problems" after construction has already started. Of course, this means escalating capital costs as well.

What Duane ignores in his recommendation for an expanded nuclear industry on the Western Prairies is the role of sustainable energies. He says the carbon tax will now make nuclear more affordable. He ignores the fact that a carbon tax will benefit alternatives such as wind, solar and geothermal even more than nuclear. In his forecast of future energy demand, he fails to recognize that more than 10,000 megawatts of electricity production is already planned for the province between now and 2015 (about 35% of this from wind.) Even taking firm capacity factors into consideration, the energy generation already on the books more than covers any shortfall expected in 2024. We simply don't need nuclear power.

In Alberta, residential electrical use over the last decade has actually decreased. Energy efficiency is another option that Duane doesn't consider. Meanwhile, the cost of renewable energies such as wind and solar continues to drop, while capital costs, particularly in Alberta, spiral upwards, making nuclear increasingly expensive.

In "Prairie Atoms" page 11, Duane talks about the "greater efficiency of nuclear power", even though according to Duane's own numbers, the CANDU has the lowest efficiency of any other nuclear reactor anywhere, at only 61.5% (p. 14, "Candu or Candon't"). Meanwhile, the reliability of wind will continue to improve. One way this can happen is joining multiple wind farms together.

Duane admits to AECL's history of huge cost overruns but says they are common with other nuclear operators such as AREVA and Westinghouse. This would seem to me to be a condemnation of nuclear as a viable economic venture in general, not an excuse for AECL's poor performance. He also thinks Bruce Power can be made to pay when the capital costs go over budget (as we can expect they will). However, Team CANDU (which includes AECL) has already gone to the federal government asking them to cover the unavoidable cost overruns associated with building a first-of-its kind reactor.

Duane makes much of the environmental benefits of nuclear. The 62.5 CO<sub>2</sub> per kW hour is a bit low, with 66 CO<sub>2</sub> emissions per kW hour cited in the June 2008 issue of Energy Policy, the International Journal of the Political, Economic, Planning, Environmental and Social Aspects of Energy ([www.elsevier.com/locate/enpol](http://www.elsevier.com/locate/enpol)). But at least he doesn't claim that nuclear power is emissions free and he does recognize the lifetime emissions produced by the nuclear cycle. Duane does however downplay the fact that the nuclear fuel cycle, of which he wants the western provinces to be part of, does contribute significantly to global warming, and much more so than the fast growing renewable energy source wind power. The 4000 megawatts of nuclear power proposed for Alberta would produce an average of 1.5 million tonnes of CO<sub>2</sub> emissions per year, or 90 million tonnes over the estimated 60 year life of the ACR-1000 reactors. This is significantly more than other sustainable energy options such as wind.

"Prairie Atoms" completely ignores the impact of nuclear power on water. The 4000 megawatts of nuclear power proposed for Alberta would require forty times the amount of water used by Calgary in one year, contaminate our rivers with tritium, and endanger our fish and wildlife.

The following are some of the opportunities that Duane identifies for nuclear in "Prairie Atoms":

1. **Centre of Excellence:** Absolutely great idea, but the expertise we should develop is in sustainable energies. This would be true innovation and investment in an area that is growing worldwide and will only continue to grow. Adam Steiner, the UN Environment Program executive director, has this to say about the renewable energy sector: "We are not talking about niche markets anymore. We are talking about millions of jobs that are emerging across the global economy" National Post, Sept. 25, 2008.

Why would we instead gamble on the risky business of nuclear? The third generation reactors now being built in Finland by the French nuclear operator AREVA, and Westinghouse in the United States, are experiencing design problems, qualified labour shortages, and quality control issues. Safety is compromised and cost-overruns are inevitable. AECL won't be any different.

2. **Meeting Electricity Demand.**

As Alberta Energy statistics show, over the next 10 years, more than 10,000 megawatts of additional electrical generation is already planned for the province including about 35% from wind. This is almost double the 2000 megawatts of generation from wind power that the Alberta Electric System Operator's 2005, 20-year Outlook predicted would be developed by the end of 2024. With the 900 megawatt cap on wind power now removed, we will continue to see accelerated growth. Internationally, Germany gets more than 20% of its energy from renewable energies, Spain 40%. These are the innovations in energy generation that we should emulate.

3. **Mitigating Climate Change and 4. Replacing Natural Gas.** Sustainable energies are a safer and more effective ways to address

CO<sub>2</sub> emissions than nuclear and a better way to rely less on natural gas for electrical generation. Most renewable energies emit less green house gases than nuclear while avoiding the other negative environmental impacts of the nuclear fuel cycle such as tailings ponds, nuclear waste, and radioactive emissions into our air and water.

5. **Increased Exports.** "Prairie Atoms" also sees nuclear as an opportunity for export. Duane tells us that in New Brunswick, a study is being done to consider building a nuclear reactor with part of its electricity headed to the New England states. And with Alberta already looking to a future energy surplus, the real agenda becomes clear: Canadians take the financial and environmental risks that come with nuclear, while the United States finds a new source of energy to meet its dwindling supplies.

In "Prairie Atoms", a new sales pitch for nuclear, Duane seems to forget about the facts he presented in his 1998 article, that nuclear only works through heavy subsidies, has a questionable safety record, and contributes to the proliferation of nuclear weapons. Duane is right that the real economic and environmental opportunity for the Western Prairie Provinces is in energy, but not in the problem-plagued and ethically questionable nuclear industry, but rather the innovative business of sustainable energies.

# WIND POWER



The massive blades of windmills such as these turn in the wind near Pincher Creek Alberta. The area includes a number of wind farms with windmills reaching up to 300 feet tall. The Alberta government recently removed a 900 MegaWatt threshold on wind power generation.

## WHAT ABOUT WIND?

### DOES WIND HOLD UP AS A POTENTIAL LARGE-SCALE SOURCE OF ELECTRICITY?

by Roger Gagne

In Alberta, the number of proposed projects has increased since restrictions on the sale of wind power were removed last fall. The provincial government had previously placed a cap of 900 megawatts (MW) on the amount of wind power that could be sold onto the grid, whereas current installed capacity is about 530 MW, according to Neil Millar, VP of Transmission with the Alberta Electric System Operator (AESO). Alberta's record demand, set in January, 2008, was 9,710 MW. Additionally, the AESO forecasts a need for an additional 5,000 MW of capacity over the next 10 years.

This forecast presumes, however, a business-as-usual growth in electricity demand; it doesn't consider the potential harvesting of wasted power, despite the weight of numerous studies which show that energy conservation and efficiency are the fastest and most cost-effective sources of new distributable power. Whatever our energy source, we must also look at managing our unsustainable level of demand.

Alberta's cap on wind power was related to the frequent criticism of renewables that power is only generated when the sun shines or the wind blows. Critics have said that wind and sun can never be more than niche players in meeting our energy needs and that we must turn to coal, gas, or nuclear to meet our demand for steady, reliable power. How true is that?

Cristina Archer and Mark Jacobson of Stanford University have shown, in the November 2007 issue of the American Meteorological Society's "Journal of Applied Meteorology and Climatology", that interconnecting wind farms with a transmission grid reduces the power swings caused by wind variability and makes a significant portion of it a power source equally as consistent as a coal-fired plant. Archer

suggests that by planning out the siting and interconnection of new wind farms, transmission costs could be reduced while smoothing out fluctuations in generated power, offering lower costs to wind energy which is already the cheapest of renewable electricity generators after hydro.

Another rapidly evolving area making wind power more attractive is the large-scale storage of electricity. Cutting edge technologies like reversible flow batteries are being tested and put into commercial use in several parts of the world, while older established options such as pumped hydro storage are being put to wider use. California leads the way in developing new policy options to support deployment of power storage, allowing grid operators to integrate large amounts of renewable energy. Increasingly, power storage is not only technically sound, but also cost effective.

Germany is a world leader in renewable energy, thanks in part to former parliamentarian Hermann Scheer. Speaking of Germany's renewable power program, Scheer says, "It is the most successful new-job creation program we ever had, the most cost-effective job creation program, and the most effective climate-protection program; cheaper than [any] emission-trading concept."

Scheer points out that Germany has installed 22,000 MW of wind power in less time than it takes to build a single nuclear plant. This is approximately 1/5 of Canada's entire power generating capacity, and it illustrates how quickly we can revitalize our country's energy supplies with environmentally friendly options if we choose to get serious about sustainability.

# CAUSE NEWS BITS...

## CAUSE HOSTED DR. GORDON EDWARDS...

...President of the Canadian Coalition for Nuclear Responsibility (CCNR) for a public discussion early in 2008. Dr. Edwards made a presentation entitled 'Nuclear Power: Hope or Hoax?' In his presentation Dr. Edwards stressed some important facts about the ability of nuclear power to solve the global warming issue. Dr. Edwards pointed out that according to the United Nations Intergovernmental Panel on Global Warming - nuclear power in 2005 accounted for sixteen percent of global electricity production or about 2.7% of total energy production worldwide.

The Intergovernmental Panel further determined that continued investment in nuclear power over the next twenty-five years **"given costs relative to other energy supply options"**, nuclear could achieve an eighteen percent share of global electricity production or about 3.0% of total energy production world wide by the year 2030. Thus, according to the Intergovernmental Panel on Climate Change, nuclear power could go from 2.7% to 3% of total energy production worldwide. This 3% figure

is the total contribution nuclear power can make within the next twenty-five years. Dr. Edwards concluded this was much to slow to make an impact on global warming and he stressed; **"Nuclear Power is not the 'magic bullet' to solve global warming, plus safety, weapons proliferation and radioactive waste remain as constraints to nuclear energy"**.

*Note: We plan to present more complete and detailed information from Dr. Edwards presentation "Nuclear Power: Hope or Hoax?" in a future edition of the newsletter.*

## CAUSE WAS AT FESTIVALS...

...around Calgary over the summer months meeting people, handing out bumper stickers and getting the message out about the proposal for nuclear power in our province. CAUSE was also letting people know about truly sustainable sources of energy that are clean and green and available today.

CAUSE attended the 'SUN & SALSA festival in Kensington, the CALGARY FOLKFEST at Prince's Island Park and the MARDA GRAS



**CAUSE supports  
a safe, clean  
Environment**

FESTIVAL in Marda Loop. CAUSE will also have a booth at the ECO-LIVING FAIR at Mount Royal College on

Saturday, September 27th from 9:00AM to 7:00PM. We can always use your help at this or any other CAUSE event. The work is fun and easy plus a great way to get out and meet fellow Calgarians. You may even get a free CAUSE T-Shirt!

If you would like more information about volunteering for any upcoming event contact CAUSE at the following email: [nuclearfreealberta@gmail.com](mailto:nuclearfreealberta@gmail.com)

## WHAT IS CAUSE?

We are a grass-roots, non-profit, all volunteer group of Alberta citizens dedicated to maintaining our province as a nuclear free zone through active participation in citizen action, public education and advocacy for alternative forms of sustainable energy.

## SAVE ENERGY BY:

- turning off lights, computers, TV's when not in use.
- Use energy efficient compact florescent light bulbs.
- Run your dishwasher, clothes washer and dryer early in the morning or late at night.
- Use small appliances like a toaster oven or microwave instead of your stove.

## CAUSE NEWSLETTER

CONTACT THE NEWSLETTER AT [BIGBLUEMARBLE@CANADA.COM](mailto:BIGBLUEMARBLE@CANADA.COM)

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