

## **Preface by Dr Patrick Moore<sup>1</sup>, PhD to Bruno Comby's book**

### **“Environmentalists For Nuclear Energy”**

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For press requests, contact the Comby Institute at +33 1 30 86 00 33.*

It was with great pleasure that I agreed to write a preface to this book which is very much in line with my own convictions. Let me begin with a few words about who I am and where I've come from.

I was born and raised on the northwest tip of Vancouver Island in the tiny fishing and logging village of Winter Harbour, in the rainforest by the Pacific. I didn't realize what a blessed childhood I'd had, playing on the tidal flats by the salmon spawning streams in the rainforest, until I was shipped away to boarding school in Vancouver at age fourteen.

Eventually, I attended the University of British Columbia studying the life sciences: biology, forestry, genetics; but it was when I discovered ecology that I realized that through science I could gain an insight into the mystery of the rainforest I had known as a child.

I became a born-again ecologist, and in the late 1960's, was soon transformed into a radical environmental activist. In 1971, with a like-minded group of people, in a church basement in Vancouver, we planned a protest campaign against US hydrogen bomb testing in Alaska. We proved that a somewhat rag-tag looking group of activists could sail a leaky old halibut boat across the North Pacific Ocean and change the course of history.

This was the birth of Greenpeace.

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<sup>1</sup> Patrick Moore was one of the founders of Greenpeace in 1971, director of Greenpeace International for 7 years, as well as the founder of Greenpeace Canada and its President for 9 years. He then leaves Greenpeace and, in 1990, founded Greenspirit, focusing on global environmental issues including climate change, forests, biodiversity, energy, and sensible environmentalism.

In 1975 we set sail deep-sea into the North Pacific against the Soviet Union's factory whaling fleets that were slaughtering the last of the sperm whales off California. We put ourselves in front of the harpoons in little rubber boats and made Walter Cronkite's evening news. That really put Greenpeace on the map. In 1979 the International Whaling Commission banned factory whaling in the North Pacific and soon it was banned in all the world's oceans.

By the mid-1980's Greenpeace had grown from that church basement into an organization with an income of over US\$100 million per year, offices in 21 countries and over 100 campaigns around the world, tackling toxic waste, acid rain, uranium mining and drift net fishing as well as the original issues. We had won over a majority of the public in the industrialized democracies. Presidents and prime ministers were talking about the environment on a daily basis.

For me it was time to make a change. I had been against at least three or four things every day of my life for 15 years; I decided I'd like to be in favor of something for a change. I made the transition from the politics of confrontation to the politics of building consensus.

After all, when a majority of people decide they agree with you it is probably time to stop hitting them over the head with a stick and sit down and talk to them about finding solutions to our environmental problems.

Greenpeace today says we can phase out fossil fuels and nuclear energy and not build any more hydro dams; we would need only increased energy conservation, more windmills, and the development of solar panels.

That's a pleasant dream, and I sincerely wish it would be true, but it simply is not possible. Wind and solar energy are too dilute, and the electricity they produce is available only when the wind blows (erratically) or when the sun shines (at most half the time).

Another reliable, emissions-free and massively available energy source is needed to face the world's growing energy demand, and to fuel the development of China, India, Brazil, and of other developing countries.

This book provides a solution based on solid facts and common sense – one that works.

It presents you with the environmental benefits of nuclear energy.

Energy efficiency, energy conservation, and renewables should of course all be encouraged and developed, to the extent possible, but nuclear energy is the **ONLY** non-greenhouse gas-emitting power source that can effectively replace

fossil fuels and satisfy global demand.

This book warns us of the dangers of burning fossil fuels and presents the many benefits of the most environmentally-friendly solution to solve the problem, nuclear energy. It is the only clean source of power that is able to meet a significant part of the world's energy demand in the coming decades, and can therefore efficiently solve the energy problem the world is facing.

## **Sustainable Development**

The term sustainable development was adopted to describe the challenge of taking the new environmental values we had popularized, and incorporating them into the traditional social and economic values that have always governed public policy and our daily behavior. We cannot simply switch to basing all our actions on purely environmental values.

Every day over 6 billion people wake up with real needs for food, energy and materials. The challenge for sustainability is to provide for those needs in ways that reduce negative impact on the environment.

But any changes made must also be socially acceptable and technically and economically feasible. It is not always easy to balance environmental, social, and economic priorities.

Compromise and co-operation with the involvement of government, industry, academia and the environmental movement is required to achieve sustainability. It is this effort to find consensus among competing interests that has occupied my time for the past 15 years.

## **Environmental Extremism**

Not all my former colleagues saw things that way. They rejected consensus politics and sustainable development in favor of continued confrontation and ever-increasing extremism.

Environmental extremists are anti-human. They are anti-science, anti-technology and anti-business. They are just plain anti-civilization. In the final analysis, eco-extremists project a naive vision of returning to the supposedly Utopian existence in the garden of Eden, conveniently forgetting that in these old days people lived to an average age of 35, famine was a concern for most of the population, and there were no dentists.

## **The Case for Nuclear Energy**

What does environmental extremism have to do with nuclear energy?

I believe the majority of environmental activists, including those at Greenpeace, have now become so blinded by their extremism that they fail to consider the enormous and obvious benefits of harnessing nuclear power to meet and secure the world's growing energy needs. These benefits far outweigh any risks. There is now a great deal of scientific data showing well designed nuclear power to be an environmentally sound and safe choice.

Today nuclear energy supplies 17 % of the world's electrical energy needs.

The demand for electrical energy is increasing and will increase at an ever growing rate: in the coming decades it is likely to be 50 per cent over present levels. By the end of the century it will likely double or perhaps even triple.

If nuclear energy was to be excluded, the world would have to rely almost entirely on fossil fuels.

## **Fossil Fuels**

A significant reduction in greenhouse gas emissions (GHG) seems unlikely given our continued heavy reliance on fossil fuel consumption. An investment in nuclear energy would go a long way to reducing this reliance.

In the United States, according to the Clean Air Council, electricity-producing power plants are responsible for 36% of carbon dioxide (CO<sub>2</sub>), 64% of sulfur dioxide (SO<sub>2</sub>), 26% of nitrogen oxides (NO<sub>x</sub>), and 33% of mercury emissions (Hg). These figures can be even higher in those countries who don't have any nuclear reactors.

These four pollutants cause significant environmental problems, including acid rain, smog, respiratory illness, mercury contamination, and are the major contributors to GHG emissions.

Among power plants, the dirty and old coal-fired plants produce the most pollution.

Again, in the United States, according to the Clean Air Council, while 58% of power plant boilers in operation in the U.S. are fueled by coal, they contribute 93% of No<sub>x</sub>, 96% of SO<sub>2</sub>, 88% of CO<sub>2</sub>, and 99% of the mercury emitted by the

entire power industry.

### **Prominent environmentalists see nuclear energy as solution**

Prominent environmental figures like James Lovelock, author of the Gaia theory, Stewart Brand, founder of the Whole Earth Catalog, and Hugh Montefiore, a founder of Friends of the Earth, have now all stated their strong support for nuclear energy as a practical means of reducing greenhouse gas emissions while meeting the world's increasing energy demands.

Bruno Comby is one of these pioneer environmentalists. He grew up in close contact with nature in the African jungle and Canada, where his father was among the first geologists searching for oil in Gabon, and then in Northern Alberta. After graduating from the highly regarded Ecole Polytechnique in Paris, Bruno became a dedicated environmentalist, devoted to research on natural nutrition and lifestyle, a pioneer of non-smoking in Europe, an author of several bestselling books on a more natural lifestyle, and an international lecturer for the last quarter of a century. He founded the Comby Institute, which does a useful job in teaching better life habits. He initiated the Optimistic Movement, which invites us to adopt a constructive mental attitude rather than always criticize. He is also the founder of EFN, the association of Environmentalists For Nuclear Energy, which pioneer environmentalists such as Professor James Lovelock, and Hugh Montefiore support.

I too place myself squarely in that category of environmentalists which consider that nuclear energy today is not a problem, but an essential solution to the most important issues that our world is facing.

### **Nuclear energy: a proven alternative**

Indeed, nuclear power is already a proven alternative to fossil fuels.

The United States relies on nuclear power for some 20% of its electricity needs, and produces nearly one-third of the world's nuclear energy.

For several decades France has produced 95% of its electricity carbon-free thanks to 80% nuclear energy, and 15% from hydroelectric energy.

Nuclear energy already provides the majority of the world's emission-free generation.

Nuclear energy helps the US avoid the release of 700 million tons of carbon

dioxide into the air every year. In fact, the electric sector's carbon emissions in the US would be about 30 per cent higher without nuclear power, and these emissions would be 10 times higher in France without nuclear reactors.

Today, nuclear power already avoids 60 times more carbon emissions than those avoided by wind turbines and solar panels added together. These dilute energies can help, but only for a small fraction of our industrial world's needs.

Nuclear energy has already made a sizable contribution to the reduction of GHG emissions in America, in Europe and in Asia.

But more must be done and nuclear energy is pointing the way.

## **Safety**

As Stewart Brand, James Lovelock, Bruno Comby and other forward-thinking environmentalists and scientists have made clear, technology has now progressed to the point where the fear-mongering being spread by anti-nuclear activists about the safety of nuclear energy bears no semblance to reality.

The Chernobyl and Three Mile Island reactors, raised as examples of nuclear catastrophe by activists, were very different from today's rigorously safe nuclear energy technology. Today, approximately one-third of the cost of a nuclear reactor is dedicated to safety systems and infrastructure.

The Chernobyl reactor, for example, had no containment structure. The 1986 accident can more nearly be characterized as a Soviet accident in a nuclear setting, rather than a nuclear accident.

The Three-Mile Island accident in 1979 was the worst one can imagine: the core melted and its remains lie in ruins in the bottom of the pressure vessel. Radioactivity was almost totally confined in the containment structure and very little escaped from the reactor vessel; leakage to the atmosphere was insignificant.

## **Proliferation**

The most serious problem with nuclear power is the possibility of nuclear weapons proliferation. Highly enriched uranium or separated and military-quality plutonium (both of which are highly difficult to obtain) may fall into evil hands and be fashioned into a bomb. The risk of the proliferation of nuclear weapons must be taken seriously. The inspectors and peaceful efforts and

missions of the International Atomic Energy Agency (IAEA) should be reinforced. Reprocessing and enrichment plants should continue to be under strict control by the IAEA. But it should also be noted that pressurized and boiling water reactors, which represent the vast majority of installed reactors, produce plutonium which is not suitable for making efficient weapons. It can also be noted that in several cases (South Africa, Argentina, Brazil), the development of a civilian nuclear program has halted a well-advanced former military nuclear program.

As in all areas of safety, constant vigilance is required. As for terrorism, it is much simpler (and cheaper) to use conventional or chemical weapons.

### **Other benefits from nuclear energy**

Besides reductions in GHG emissions and the shift away from our reliance on fossil fuels, nuclear energy offers two important additional and environmentally-friendly benefits.

First, nuclear power offers an important and practical ticket to the “hydrogen economy.” Hydrogen, as a clean fuel to generate electricity, offers the promise of clean, green energy for transportation. By using heat from high-temperature nuclear reactors to create hydrogen, an affordable, efficient, emission-free hydrogen production can be developed.

Second, around the world, nuclear energy could be used as the solution to another growing crisis: the increasing shortage of fresh water available for human consumption and crop irrigation. Globally, desalinization processes are being used as a means of creating fresh water. Again by using excess heat from nuclear reactors, water could be desalinized and the ever increasing demand for fresh water could be met.

### **Anti-nuclear environmentalists are the problem**

Today, 440 nuclear reactors are in operation around the world, producing large amounts of reliable, clean carbon-free electricity.

What we need to do is at least triple the number of nuclear reactors in the coming decades, to really reduce significantly the consumption of fossil fuels and minimize the consequences of climate change.

Greenpeace and other multi-million dollar anti-nuclear organizations have been successful in misinforming the population on energy matters by spreading myths and unfounded or vastly exaggerated scare-stories about nuclear energy.

It is the stubborn opposition of anti-nuclear groups to the benefits of nuclear energy that is actually the major obstacle to the realistic achievement of carbon dioxide reductions around the world, because they oppose the best and most reasonable alternative to fossil fuels.

The public should now be told the truth, the positive side of the story about the benefits of nuclear energy for the environment as well as a more sustainable, safer and more secure energy future.

It is therefore with pleasure that I have accepted to help create and to serve on the board of EFN-CANADA<sup>2</sup>, to inform the public correctly about these matters, and I invite all like-minded environmentalists to climb on board and join us.

## **Conclusion**

I want to conclude by emphasizing that, as Bruno Comby rightly points out, nuclear energy – combined with other alternative energy sources like solar heat, geothermal, wind and hydro – remains the only practical, safe and environmentally-friendly means of resolving the world's energy crisis.

To meet our world's increasing demand for energy, we will need to mobilize all the clean energy sources available. The nuclear industry must be revitalized and allowed to grow, especially in those countries that have already achieved a high level of nuclear safety, in Europe, in America and in Asia.

The time for common sense and scientifically-sound decisions on the nuclear energy issue is now.

The ice caps in Northern Canada, in Siberia, and in Greenland are melting at an unprecedented speed.

The rapid depletion of oil and gas reserves, and the rapid climate change leaves us no more time to indulge in further delays or solutions that don't work.

Our civilization is in danger and the nuclear solution is at hand. Not only should we not oppose it, but we should embrace it, and develop it much further than it is today – for the sake of our future on this planet.

Patrick Moore, PhD

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<sup>2</sup> Environmentalists For Nuclear Energy / Ecologistes Pour l'Énergie Nucléaire (Canada) Inc., not-for-profit organization, see [www.ecolo.org](http://www.ecolo.org) and click on a flag.