Title:
James Lovelock’s Latest Book Trashes Renewables, Endorses Nuclear Energy

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Summary:
James Finch reviews the latest book by James Lovelock, globally recognized as a Giant of the Environmental movement. Lovelock dissects renewable energy sources as more dangerous than advertised, more science fiction than reality. Lovelock endorses nuclear energy as the sole and safe present means of meeting global energy demands.

Keywords:
energy, environment, politics, global warming, carbon dioxide emissions, greenhouse gases, nuclear, uranium, hydro, wind, solar, bio fuels, coal, oil

Article Body:
On the front page of the World Nuclear Association website prominently rests a quote from what some consider the world’s leading environmentalist and among the world’s top scientists, Dr. James Lovelock: “There is no sensible alternative to nuclear power if we are to sustain civilization." - James Lovelock, preeminent world leader in the development of environmental consciousness

At age eighty-six, Dr. Lovelock has just published his fourth book, The Revenge of Gaia (Penguin Books, 2006). “Gaia" is Dr. Lovelock’s belief that earth is a living, evolving organism, not just a hunk of rock we all live upon. Through his book, Lovelock refers to Gaia, when he is discussing our third planet from the sun. His latest book is a MUST read for anyone who is following the renaissance in nuclear energy. Environmentalists won’t read this book. Perhaps their bosses will BAN them from reading this book. Those environmentalists who carefully read Lovelock’s latest book may very well become nuclear power lobbyists, if they would bathe, shave and spiff up a bit. Chapter Five, “Sources of Energy," will instantly disintegrate every ridiculous argument propounded by the naïve and antediluvian anti-nuclear movements across the world.

Dr. Lovelock’s credentials and achievements are light years beyond those of any environmental mouthpiece espousing the “green" movement. More so than anyone alive, Lovelock is first and foremost a giant of the earth’s environmentalist movement. Since 1974, Lovelock has been a Fellow of the Royal Society. Since 1994, he has been an Honorary Visiting Fellow of Green College, University of

Oxford. New Scientist described him as “one of the great thinkers of our time. The London Observer has called him, “one of the environmental movement’s most influential figures." In 2003, he was made Companion of Honour by Her Majesty the Queen. Prospect magazine named Dr. Lovelock in September 2005, “one of the world’s top 100 global public intellectuals."

How does Dr. Lovelock respond to the question of nuclear waste? He writes, “I have offered in public to accept all the high-level waste produced in a year from a nuclear power station for deposit on my small plot of land it would occupy a space about a cubic metre in size and fit safely in a concrete pit, and I would use the heat from its decaying radioactive elements to heat my home. It would be a waste not to use it. More important, it would be no danger to me, my family or the wildlife." That should enlighten the yokels arguing against the Yucca Mountain nuclear waste depository.

Chapter Five, “Sources of Energy," concisely and cogently answers every silly “theory" about renewable energy sources hyped by the “green" movement. Let’s take Biomass, which makes sense to any concerned citizen. Lovelock even agrees with the theory of Biomass, writing, “Used sensibly and on a modest scale, burning wood or agricultural waste for heat or energy is no threat to Gaia." Please note that he modified his statement with “sensibly" and “modest." In a nutshell, he explains why Biomass will not become a leading energy source, “Bio fuels are especially dangerous because it is too easy to grow them as a replacement for fossil fuel they will then demand an area of land or ocean far larger than Gaia can afford… We have already taken more than half of the productive land to grow food for ourselves. How can we expect Gaia to manage the Earth if we try to take the rest of the land for fuel production?" He added poignantly, “Just imagine that we tried to power our present civilization on crops grown specifically for fuel, such as coppice woodland, fields of oilseed rape, and so on. These are the ‘bio fuels’, the much-applauded renewable energy source…We would need the land area of several Earths just to grow the bio fuel."

Wind power gets shellacked as well. For those environmentalists, such as Amory Lovins, who believe “Wind Farms" are going to become a significant energy source, they are full of hot air. According to the Royal Society of Engineers 2004 report, onshore European wind energy is two and a half times, and offshore wind energy over three times, more expensive per kilowatt hour than gas or nuclear energy. Denmark, which pioneered wind farms, is regretting the decision. Niels Gram of the Danish Federation of Industries said, “In green terms windmills are a mistake and economically make no sense… Many of us thought wind was the 100-percent solution for the future, but we were wrong. In fact, taking all energy needs into account it is only a 3 percent solution." Lovelock writes, “To supply the UK’s present electricity needs would require 276,000 wind

generators, about three per square mile, if national parks, urban, suburban and industrial areas are excluded… at best, energy is available from wind turbines only 25 percent of the time." German environmentalists, who have recently led the charge for Wind Power, should reconsider. Lovelock writes, "The most recent report from Germany put wind energy as available only 16 percent of the time."

Surely, solar power must be the answer, right? Wrong! Lovelock writes, "Solar cells are not yet suitable for supplying electricity directly to homes or workplaces, mostly because, despite over thirty years of development, they are quite expensive to make. At the Centre for Alternative Technology in Wales there is an experimental house with a roof made almost entirely of silicon photocells. In summer it provides about three kilowatts of electricity, but the cost of installation was comparable with the house itself, and the expected life of the cells is about ten years. Sunlight, like wind, is intermittent and would, without efficient storage, be an inconvenient energy source at these latitudes."

Solar and wind power were just two of the many energy sources Lovelock sends to the dumpster. Wave and tidal energy, hydro-electricity, hydrogen, fusion energy, coal and oil and natural gas all suffer similar consequences under Dr. Lovelock's scientific microscope. Geothermal gets a partial endorsement, but Lovelock writes, "Unfortunately there are few places where it is freely available. Iceland is one of them, and it draws a large part of its energy needs from this source." How many of you know that, while natural gas could cut carbon dioxide emissions by half, if used ubiquitously, some of the natural gas leaks into the air before it burnt? According to the Society of Chemical Industry's report (2004), this amounts to about 2 to 4 percent of the gas used. Methane, the main constituent of natural gas is 24 times more potent a greenhouse gas than carbon dioxide.

Fusion sounded great in theory, but when I discussed it with Dr. Fred Begay, at the Los Alamos National Laboratories, this past November, he told me it may take fifty years to develop, if it ever could be developed as an energy source. Lovelock explains in his book why Fusion Energy would be wonderful, but he brought up the one point, which stymies nuclear physicists (and which environmentalists won't even talk about), "… the nuclear fusion of hydrogen yields millions of times more energy than its mere combustion, but to start the powerful reaction requires some means of heating the hydrogen to 150 million degrees." How exactly go you go about heating something on earth up to 150 million degrees, when the core of the sun has a temperature of a little more than 100 million degrees? Again, great theory and work is being done in this arena to bring about a solution sometime this century, but this technology remains in an incubation stage.

The most shocking and disturbing discussion through Lovelock's book was the

problem with carbon dioxide emissions. The burning question these days is “WHAT" to do with nuclear waste. Lovelock believes we should start worrying about what to do about carbon dioxide emissions waste, “The world’s annual production of carbon dioxide is 27,000 million tons. If this much were frozen into solid carbon dioxide at -80 degrees Centigrade, it would make a mountain one mile high and twelve miles in circumference. To sequester this much each year could not be achieved quickly – probably not sooner than twenty years from now." He added, “If only had developed and installed the equipment for removing carbon dioxide from power stations and industry fifty years ago, we would now face surmountable problems." Another problem with carbon dioxide should give you nightmares or reach for a gas mask. Carbon dioxide, according to Dr. Lovelock, “has a complicated removal with an effective residence time of between fifty and a hundred years. About half of the carbon dioxide we have so far added to the air remains there." That means the carbon dioxide we add to our existing air pollution will still be breathed by our children, grandchildren and their children. How is that for a legacy?

James Lovelock’s Conclusion on Nuclear Energy

How does James Lovelock feel about nuclear energy? “I believe nuclear power is the only source of energy that will satisfy our demands and yet not be a hazard to Gaia and interfere with its capacity to sustain a comfortable climate and atmospheric composition. This is mainly because nuclear reactions are millions of times more energetic than chemical reactions. The most energy available from a chemical reaction, such as burning carbon in oxygen, is about nine kilowatt hours per kilogram. The nuclear fusion of hydrogen atoms to form helium gives several million times as much, and the energy from splitting uranium is greater still."

Through his book, Lovelock reminds us that nuclear power is the single answer for this century, “We need emission-free energy sources immediately, and there is no serious contender to nuclear fission."

Lovelock addresses Three Mile Island, Chernobyl, nuclear testing in the 1960s, and many other events over the past fifty years, as nuclear energy has developed. If you wondered about radiation and cancer, Lovelock answers that as well. You may leap up, after reading those pages, and start faxing them off to every environmentalist group you can contact. It may be the most definitive analysis of the disconnect the media and the greens have about nuclear energy and its impact on our health that you have ever read. Lovelock concludes, “The persistent distortion of the truth about the health risks of nuclear energy should make us wonder if the other statements about nuclear energy are equally flawed."

One specific question that has puzzled me, for a number of years, was this: How many people die to produce each of our energy sources? The table below answered that question. The comparative safety of the different energy sources comes from the Paul Scherrer Institute in Switzerland in a 2001 report, which Lovelock reproduces on page 102 of his book. The Institute examined all of the world's large-scale energy sources and compared them against their safety records. The numbers of deaths were expressed in terms of terrawatt year of energy made, between 1970 and 1992. A terrawatt year (TTY) is one million million watts of electricity made and continuously used throughout a year.

Fuel Fatalities Who Deaths per TTY
Coal 6400 Workers 342
Hydro 4000 Public 883
Natural Gas 1200 Workers and Public 85
Nuclear 31 Workers 8

Lovelock does not simply endorse nuclear, as an idle thought. He is passionate about nuclear energy as a life-saving measure, "My strong pleas for nuclear energy come from a growing sense that we have little time left in which to install a reliable and secure supply of electricity…. The important and overriding consideration is time we have nuclear power now, and new nuclear building should be started immediately. All of the alternatives, including fusion energy, require decades of development before they can be employed on a scale that would significantly reduce emissions."

He concludes his masterpiece of Chapter Five of The Revenge of Gaia by writing: "Meanwhile at the world's climate centres the barometer continues to fall and tell of the imminent danger of a climate storm whose severity the Earth has not endured for fifty-five million years. But in the cities the party goes on how much longer before reality enters our minds?