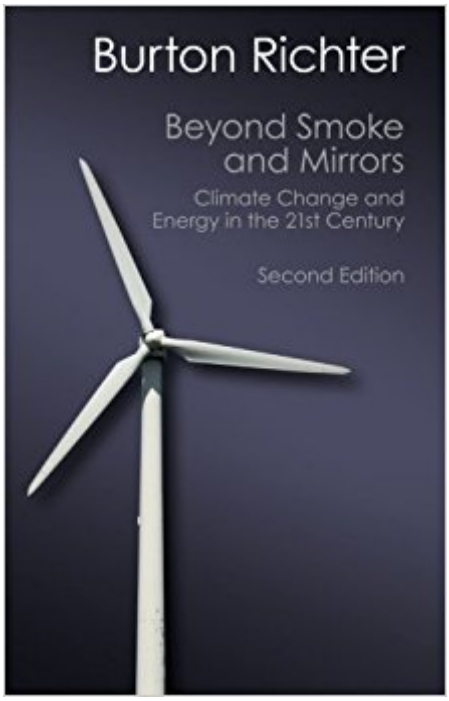
Beyond Smoke And Mirrors: Climate Change And Energy In The 21st Century (Canto Classics)



Synopsis

Global climate change is one of the most important issues humanity faces today. This updated, second edition assesses the sensible, senseless and biased proposals for averting the potentially disastrous consequences of global warming, allowing the reader to draw their own conclusions on switching to more sustainable energy provision. Burton Richter is a Nobel Prize-winning scientist who has served on many US and international review committees on climate change and energy issues. He provides a concise overview of our knowledge and uncertainties within climate change science, discusses current energy demand and supply patterns, and the energy options available to cut emissions of greenhouse gases. Written in non-technical language, this book presents a balanced view of options for moving from our heavy reliance on fossil fuels into a much more sustainable energy system, and is accessible to a wide range of readers without scientific backgrounds - students, policymakers and the concerned citizen.

Book Information

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Customer Reviews

Review of previous edition: '... a wonderfully balanced overview. It opens with a fine summary of the science linking carbon to climate ... provides a concise primer on the economics of long-term climate policy, and concludes with a short, sensible, and well-argued set of opinions and policy recommendations.' Physics Today

An insightful overview of climate change science and sustainable energy provision that assesses our options for averting potentially disastrous consequences of global warming. Written in non-technical language by a Nobel Prize-winning scientist, this second edition allows readers to form their own conclusions on sustainable energy provision and climate change.

The author, a prominent physicist and former director of a major physics research lab, who has spent the past decade looking into the facts on which the climate change debate rests, has written a book summarizing the scientific basis for concerns about the changing climate, evaluating the various technical solutions that have been proposed, and summarizing his view on a workable policy for dealing with the situation. We are unlikely to have a more qualified reviewer of this vital issue. The earth's climate depends on a delicate, nonlinear energy balance between incident energy from the sun and energy re-radiated outside the earth's atmosphere. The incident energy absorbed in the earth's surface depends on the distance from the sun, which is determined by the earth's orbit, and on the fraction of the incident energy that is not reflected by the atmosphere or the earth itself. The amount of energy radiated by the earth depends on the earth's temperature and on the fraction of that re-radiated energy not reabsorbed in the earth's atmosphere. Some carbon gases in the atmosphere--carbon dioxide and methane--strongly absorb energy at the frequencies it is re-radiated from the earth, producing a greenhouse effect for the entire planet. The earth's surface temperature must adjust so that the incident and outgoing energy fluxes are balanced. Antarctic ice-core data exhibit a remarkable correlation of CO2 concentration and temperature over 400,000 years, with a sharp increase in both since the beginning of the industrial revolution.Atmospheric carbon pollution is predominantly the result of producing energy. Oil, coal and natural gas produce 82% of the world's Total Primary Energy Supply (TPES) and 100% of the world's CO2 emissions. If the world's growing energy needs continue to be met primarily by fossil fuels, the carbon concentration in the atmosphere will continue to increase, with predictable dire consequences, and the affordably recoverable supply of fossil fuels will be depleted by 2100. Models for future temperature increases, based on projected energy requirements being met largely by fossil fuels, predict increases of 4-9 degrees F by 2100, which will raise the sea level by 2-4 feet (putting Florida under water and eliminating the snowfall that provides California's water, among other disasters). If the melting of the arctic ice fields releases the methane (CH4-- a much stronger greenhouse gas than CO2) in the underlying permafrost, matters would be catastrophically worse. While the several models used to predict climate changes are based on state-of-the-art science and computational technology, and are calibrated to match past weather patterns, their accuracy will be

known for certain only 30-40 years from now. However, all models used internationally predict an increasing temperature within the above range with `business as usual' continuation of fossil fuel use. The conclusion is unavoidable--we must start now to reduce, or at least not further increase, the carbon in the atmosphere, primarily by reducing or eliminating the burning of fossil fuels to meet the world's growing energy demands.The end use of energy in the US is 40% for the production and operation of commercial and residential buildings, 32% for industry and 28% for transportation; the primary energy sources for which are today coal 18%, gas 27%, oil 36%, nuclear 8%, renewables (including wind and solar) 2%, biomass 5% and hydroelectric 3%. Substitution of emission-free fuels for fossil fuels is the obvious solution that should be implemented immediately. The author argues that Nuclear is a safe, low-risk source of the amount of power that is needed, while the Renewables (wind and solar) are intermittent in nature, generally not located where the power is needed (among other problems) and could never provide more than a small fraction of the energy required. He is skeptical about biomass (corn ethanol causes a net increase in carbon emission relative to gasoline), but believes that carbon sequestration (burying the CO2 instead of releasing it into the atmosphere) should be investigated as a stop-gap measure.Economic, political, regulatory and policy issues that must be confronted are discussed. US government energy subsidies from 1950 through 2006 in the form of tax incentives for oil and gas, R&D for nuclear, etc. were oil $335B, gas $100B, coal $94B, hydro $80B, nuclear $65B, renewables $52B--a set of political priorities that must change.This is an important book on a vital topic that must be of interest to all who are concerned about the planet that we will leave our grandchildren.

The book was excellently written. I particularly appreciated Richter's clear demarcations between the science and the politics of climate change. This was especially true in his discussion of the increasing need for energy in a developing society, and the options for achieving this while meeting goals for reduced carbon emissions.

So good so far. Looks good and if the product holds up will be a return customer.

Well written and very informative with many links to climate changesites

GOOD BOOK

First off, I'm a bit biased because Burton Richter is my father. I found the second edition to be an

enjoyable, informative read, much like the first. (The first edition received the Phi Beta Kappa science book of the year award in 2011) A lot has changed since the first edition, and the evolution of the energy technologies is well covered. I found that there was enough new content when compared to the first edition it almost felt like a first read.As always, facts are referenced and opinion is clearly indicated. If you are interested in the science behind the climate debate, you will find your time well spent reading this book.

In his preface to the second edition, the author reminds us that he won a Nobel prize in physics and how great a door opener this is. Indeed, virtually every page of the book demonstrates which doors this has opened: those of the best government Wall Street money can buy. It does not come as a great surprise that Dr. Richter is a strong supporter of natural gas a bridge fuel, the sparkling gem of the President's Climate Action Plan.The Second Edition of this book is a poorly researched update of the fist one. This quote is a perfect example: "Fracking is not the major source of the leaks which mainly come from handling the gas once it is above ground. Gas production does need better regulation; the benefits of the shale-gas revolution are so great that banning fracking will slow the reduction in overall emissions by stopping the move away from coal." The only part of this quote that is correct is that better regulation is needed, at least if banning is considered regulation. Follow this linkÃ¢Â Â"based on research that started in 2011Ã¢Â Â"it explains all these errors in great detail: http://desmogblog.com/fracking-the-future/myth.htmlOf course, one cannot blame the author for being unaware of current research such as described here: http://climatenewsnetwork.us6.list-manage.com/track/click?u=6e13c74c17ec527c4be72d64f&id=6b2001574f&e=3da9c17dfe Just one quote from this recent paper, published in the respectable magazine Science: "the space and infrastructure required for horizontal drilling and high-volume hydrolic fracturing are transforming millions of hectares of the Great Plains into industrial landscapes."The author's explanations of the physics of climate change are worth reading as is Richter's Fourth Law: "The largest subsidies go to technologies that deliver the most votes or campaign contributions." Unfortunately, the author does not seem to grasp the implications of his own law and how Wall Street money is driving the fracking bubble and the national climate change policy. To understand that phenomenon, read Richard Heinberg's "Snake Oil: How Fracking's False Promise of Plenty Imperils Our Future."To sum up, this is a great read, but only for those who want to gain insight into the national leadership's groupthink that mistakes a global fossil fuel business plan for a U.S. energy policy.

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