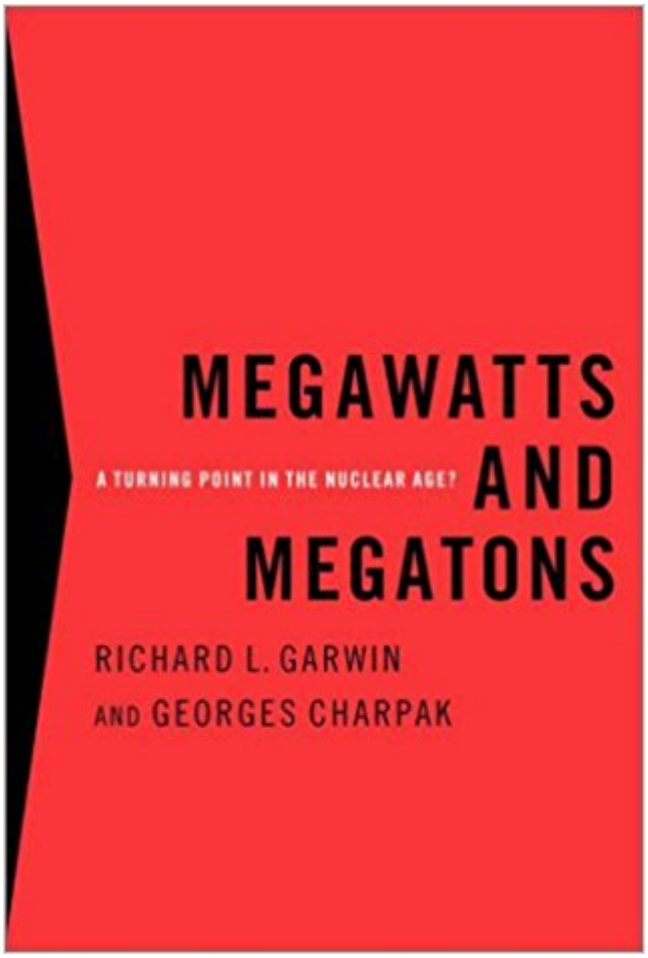
Ebook Directory
the best source of ebook

The book was found

Megawatts And Megatons: A Turning Point In The Nuclear Age?



PDF
Adobe
DOWNLOAD EBOOK

Synopsis

For nearly sixty years the menace of nuclear war has hung over humanity, while at the same time the promise of nuclear energy has enticed us. In Megawatts and Megatons, two of the worldÃ¢â ¬â„¢s most eminent physicistsÃ¢â ¬â •French Nobel Prize laureate Georges Charpak and American Enrico Fermi AwardÃ¢â ¬â œwinner Richard L. GarwinÃ¢â ¬â •assess with consummate authority the benefits of nuclear energy and the dangers of nuclear weaponry.Garwin and Charpak begin by elucidating the discoveries that have allowed us to manipulate nuclear energy with increasing ease. They clearly and concisely explain complex principles of fission and fusion pertaining to nuclear weaponry and the generation of nuclear electric power. They also make a strong and eloquent argument in favor of arms control. More than ten thousand nuclear weapons in the former Soviet Union, together with a similar number in the United States, have the capacity to destroy the world many times over. The Ã¢â ¬Å“nuclear clubÃ¢â ¬Â• of nations is growing, with India and Pakistan its latest members and Iran, Iraq, and North Korea striving for admission. Even the possibility of a single weapon in the hands of a terrorist groupÃ¢â ¬â •or a lone terroristÃ¢â ¬â •poses a threat that we cannot ignore.Meanwhile, nuclear power already provides one-sixth of all electrical energy in the worldÃ¢â ¬â •France, for instance, derives 80% of its electricity from reactorsÃ¢â ¬â • but nuclear power has met with great resistance in the United States, where the specter of the Three Mile Island breakdown still looms in the publicÃ¢â ¬â„¢s consciousness. Garwin and Charpak take a temperate, rational tone in evaluating the benefits of nuclear energy. They show how it can provide an assured, economically feasible, and environmentally responsible supply of energy in a way that avoids the hazards of weapons proliferation.Cogently written, passionately and carefully ar-guedÃ¢â ¬â •and featuring explanatory technical drawings as well as illustrations by the world-famous French cartoonist SempÃƒÂ©Ã¢â ¬â •Megawatts and Megatons is a thoughtful and important primer on two of the central issues of our time.

Book Information

Hardcover: 412 pages

Publisher: Alfred A. Knopf; 1 edition (October 2, 2001)

Language: English

ISBN-10: 0375403949

ISBN-13: 978-0375403941

Product Dimensions: 6.6 x 1.3 x 9.5 inches

Shipping Weight: 1.6 pounds (View shipping rates and policies)

Average Customer Review: 3.5 out of 5 stars 5 customer reviews

Best Sellers Rank: #2,979,940 in Books (See Top 100 in Books) #14 inÃ Â Books > Textbooks > Engineering > Nuclear Engineering #469 inÃ Â Books > Engineering & Transportation > Engineering > Energy Production & Extraction > Nuclear #1334 inÃ Â Books > History > Military > Weapons & Warfare > Nuclear

Customer Reviews

A fixture for decades in the U.S. nuclear establishment, Garwin here teams with a French physicist to inform nonscientists about the facts of nuclear energy in both its military and civilian applications. In a world that is, on the one hand, worried by carbon-dioxide emissions but, on the other, consuming ever more copious amounts of electricity, a simpleminded antinuclear stance will not suffice. Nearly one-fifth of the world’s electricity is supplied by nuclear plants. The authors essentially instruct readers about three things: how nuclear bombs explode, how nuclear reactors operate, and options for disposing of or reprocessing radioactive material. The fairly technical text is written clearly and is free of advocacy, although the authors ultimately urge the revival of the American Baruch plan of 1947, which proposed turning over all bombs to an international agency. Their preferences aside, the authors’ objectivity makes this a public-spirited book that will aid any reader who wants to know more about nuclear energy. Gilbert TaylorCopyright Ã Â© American Library Association. All rights reserved

"Megawatts and Megatons is a marvelous and original book -- partly a lively and readable physics text, partly a crucially important policy analysis. It is hard to find two more important interrelated issues than nuclear energy and nuclear power -- and impossible to find two better minds to address them"--Michael O’Hanlon, Senior Fellow at the Brookings Institution, author of Technological Change and the Future of Warfare and Defense Policy Choices for the Bush Administration: 2001 to 2005"This is a comprehensive overview of the first nuclear era. Drs. Garwin and Charpak are to be congratulated on writing a tightly-reasoned account of nuclear energy that challenges both pro- and con views."--Alvin Weinberg, former director of Oak Ridge National Laboratory and Institute for Energy Analysis, winner of the Fermi Award"Two of the world’s leading experts on nuclear power, weapons, and policy choice have pooled their formidable talents in an authoritative and readable analysis of these important issues. This is a timely book that will be of great value to anyone seeking a better understanding of what is at stake in the current nuclear policy debates on arms

control, reactors for civilian power, and ballistic missile defense."--Sidney Drell, Fermi Award-winner, Senior Fellow at the Hoover Institution, and Professor Emeritus at the Stanford Linear Accelerator Center"This excellent book gives an up-to-date, quantitative and lively description of nuclear power and weapons. The biological effects of nuclear radiation and fossil sources of energy are discussed. Will there be a turning point in the nuclear age, i.e. a truly severs reduction of nuclear weapons, and a friendlier attitude to nuclear power?"--Hans Bethe, Nobel Laureate, Professor Emeritus of Physics at Cornell University"Garwin and Charpak have created an important and hopefully influential book that explains complex issues in rational terms using language that will be accessible to the general reader. These two prominent physicists remind us that clear thinking is needed when analyzing nuclear issues and their potential impacts on the environment, the economy, public health and world peace. This book challenges our preconceived ideas."--William C. Sailor, nuclear engineer and physicist, Los Alamos National Laboratory"From reactors to hydrogen bombs, from the world's energy needs to security in the nuclear age, the facts and figures necessary for an understanding of these vital issues are lucidly expounded in this remarkable volume. Whether or not we agree with all the authors' conclusions and recommendations, the book provides the data on which to base a rational assessment of the problems. The book is a must for anyone concerned about the fate of our planet."--Professor Sir Joseph Rotblat, Nobel Peace Laureate, Emeritus President of Pugwash"Drs. Garwin and Charpak have produced a superb analysis of the interlinked futures of nuclear energy and nuclear weaponry -- elegantly written, beautifully argued, deeply instructive. Novice and expert alike will come away from this book with new insights and a sounder basis for participating in the fateful nuclear choices before us in the twenty-first century."--John P. Holdren, Chairman, Committee on International Security & Arms Control, National Academy of Sciences"This book will be of great value to readers at all levels of knowledge of nuclear matters. It provides a very readable introduction to the basic facts and concepts of nuclear power and nuclear weapon technologies, together with sophisticated, if simply presented, discussions of the major policy issues that arise from their constructive and destructive potentials."--David Bodansky, Professor of Physics, University of Washington

Although its authors fail to recognize that worldwide oil+natural gas extraction will certainly peak before 2015, this book is very timely. Garwin & Charpak write (p. 246) "We believe that one of the highest duties of society as a whole is to assess and to choose its destiny. In this book our goal is less to prescribe than to inform our readers of the options as we see them ... In considering nuclear energy we do not in any way intend to denigrate other approaches to providing for the needs of

society -- including renewable energy, improved efficiency to reduce energy needs, and the like. Nevertheless, all these options will have direct and indirect effects on the environment." Nuclear power for electricity generation is one of their threads, the other is weapons and arms control which Garwin has worked on for many years mostly to point out the futility of defense against weapons not delivered by missiles and against missiles after decoys are deployed.The book compares the success of nuclear power-plants in France (where reactors produce 80% of the electricity) with the perceived failures in execution in the US. The authors consider both direct (once through) disposal and reprocessed fuel cycles, outlining costs in energy and radioactivity release of both, and the mixed French experience with reprocessing and breeders. They note that advanced reprocessing has the potential to reduce waste volume and long-term radioactivity, at the expense of doubling release today (p. 198). They advocate research into uranium separation from sea-water, noting that early experiments are very promising that this can meet growing power needs for hundreds of years. Of course, what we really need are about 40 years of growth to bridge the world to a mix of fully sustainable electricity sources and to take up the growing slack from declining oil+natural gas. The authors first consider the bridging contribution of coal, arguing (p. 232) that CO2 sequestration is certainly feasible at the cost of reducing power-plant net energy output by 30-50%. Coupled with oil+gas decline, sequestration would reduce anthropogenic CO2 generation to levels well below the lowest 2100 projection of the IPCC (perhaps explaining the seemingly comatose response of Cheney/Bush to the Kyoto process). They discuss reactor concepts like the inaccurately named "energy amplifier" sub-critical, accelerator assisted thorium concept of Rubbia, but less discussion of nearer term developments such as the pebble bed modular reactors that seemed until 4/02 to be on track in South Africa. Both approaches are said to attain passive safety. If such designs are not debugged urgently, we will have to depend on expanded use of derivatives from technically "ancient" light-water reactors derived from submarine power-plants.The authors also discuss opportunities for terrorists to divert enriched fuel from reprocessing and waste disposal, and note how attractive disposal sites will be for future warriors after all but the plutonium has decayed! They do not discuss the vulnerabilities of existing reactors, but do advocate burying the next generation of power-plants. A chapter on safety also advocates distributing potassium iodide tablets to saturate thyroids of those near power-plants undergoing "an incident

This book is a must read for anyone wanting the true non-technical informationabout nuclear power or weapons - and what to do with nuclear material.Especially for those in the nuclear industries, this gives a very comprehensiveand non-biased overview of the important questions and motivations

thatyou probably will not get from your employers, written bytwo who have been at the forefront since the beginning of the nuclear age.

This book covers the science, history, current practice and issues of nuclear power and nuclear weaponry. The first several chapters go over the science of nuclear fission and fusion, and the technology used to harness it. This is accompanied by a short history of the development of nuclear weapons and power. The rest of the book then looks at the state of the nuclear industry around the world, both from a commercial, political, and technological standpoint, and how this compares with other energy systems such as the oil industry, coal industry, etc... The book covers the different types of reactors in existence and under design. The authors also give a good history of nuclear accidents, both in the reactors, and accidental release of radioactive waste. The book ends with chapters on how nuclear power has affected international relations, and what options exist in this area for the future. Overall a good book to read; highly informative and comprehensive. One minus that I found is that the authors are found of citing facts and figures and reproducing tables and graphs, without always including the corresponding references in the text. Instead, all the references are listed at the end of the book.

You might think Megawatts and Megatons subtitled "The Future of Nuclear Power and Nuclear Weapons" (paperback) would have different contents than the one subtitled "A Turning Point in the Nuclear Age" (hardback), like I did; however, with the exception of a new couple-page "Note to the Paperback Edition," I saw no differences. I'd suggest not falling for 's Buy Both on these two, because you'll probably be disappointed to find out you got two editions of the same book.

If the second sentence of Chapter One is an accurate excerpt from this book, it is seriously flawed:Excerpt from Megawatts and Megatons : A Turning Point in the Nuclear AgeChapter 1ATOMS, ELECTRONS, AND NUCLEIAll matter is an assembly of atoms. A liter of water, for example, contains about 1026 atoms of hydrogen and oxygen.Please, tell me it isn't so. If it were, we'd be able to see those atoms, wouldn't we?

Download to continue reading...

Megawatts and Megatons: A Turning Point in the Nuclear Age? Nuclear Prepared - How to Prepare for a Nuclear Attack and What to do Following a Nuclear Blast: Everything you Need to Know to Plan and Prepare for a Nuclear Attack Nuclear energy. Radioactivity. Engineering in Nuclear Power Plants: Easy course for understanding nuclear energy and engineering in nuclear power plans

(Radioactive Disintegration) Handbook of Nuclear Chemistry: Vol. 1: Basics of Nuclear Science; Vol. 2: Elements and Isotopes: Formation, Transformation, Distribution; Vol. 3: ... Nuclear Energy Production and Safety Issues. Turning Back: The Turning Series, Book 2 The Battles of Armageddon: Megiddo and the Jezreel Valley from the Bronze Age to the Nuclear Age Gettysburg: The Graphic History of America's Most Famous Battle and the Turning Point of The Civil War (Zenith Graphic Histories) Gettysburg: The Graphic History of America's Most Famous Battle and the Turning Point of the Civil War (Graphic Histories) Turning Point, 1997-2008 Hue 1968: A Turning Point of the American War in Vietnam Turning Point: A Post Apocalyptic EMP Survival Fiction Series (The Blackout Series Book 3) The Gettysburg Cyclorama: The Turning Point of the Civil War on Canvas The Jury Process (Turning Point Series) Nuclear Reaction Data and Nuclear Reactors: Physics, Design, and Safety A Dictionary of Nuclear Power and Waste Management With Abbreviations and Acronyms (Research Studies in Nuclear Technology) Nuclear War Survival Skills: Lifesaving Nuclear Facts and Self-Help Instructions Essentials of Nuclear Medicine Imaging: Expert Consult - Online and Print, 6e (Essentials of Nuclear Medicine Imaging (Mettler)) Radiopharmaceuticals in Nuclear Pharmacy and Nuclear Medicine Nuclear Accidents and Disasters (Nuclear Power) Nuclear Energy, Seventh Edition: An Introduction to the Concepts, Systems, and Applications of Nuclear Processes

Contact Us

DMCA

Privacy

FAQ & Help