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Annotated Bibliography of Ethical Issues in Physics: Energy Issues

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Ethical Issues in Physics
Bibliography assembled by
Marshall Thomsen
Eastern Michigan University
February 2012
Energy Issues

ENE

Bulletin of the Atomic Scientists

67.6(November 2011) pp. 44–52

Fukushima and the inevitability of accidents

The author argues that in complex systems such as nuclear power plants, accidents are inevitable, despite the precautions taken by operators and regulators.

ENE

APS Forum on Physics and Society Newsletter

Volume 40, Number 4 October 2011

Personal Transportation in the 21st Century and Beyond

Danny J. Krebs

This article focuses primarily on energy sources for personal transportation.

ENE

APS Forum on Physics and Society Newsletter

Volume 40, Number 4 October 2011

The Quest for a Fusion Energy Reactor

Weston M. Stace (reviewed by Bernard L. Cohen)

Book Review

ENE

Bulletin of the Atomic Scientists

67.5(September 2011) pp. 9–18

Deconstructing the zero-risk mindset: The lessons and future responsibilities for a post-Fukushima nuclear Japan

Tatsujiro Suzuki

This article includes an overview of the challenges facing Japan as it continues to deal with the damaged nuclear power plants.

ENE

Bulletin of the Atomic Scientists

67.5(September 2011) pp. 19–26

Nuclear or not? The complex and uncertain politics of Japan's post-Fukushima energy policy

Masa Takubo

The focus is on the future of nuclear power policy in Japan.

ENE

Bulletin of the Atomic Scientists

67.5(September 2011) pp. 27–36

The radiological and psychological consequences of the Fukushima Daiichi accident

Frank N. von Hippel

While the quantity of radioactive fallout from the Japan accident is an order of magnitude less than that of the Chernobyl accident, and hence the physical impact on humans is less, the psychological impact may be just as significant.

ENE

Bulletin of the Atomic Scientists

67.5(September 2011) pp. 37–46

Fukushima: The myth of safety, the reality of geoscience

Johannis Nöggerath, Robert J. Geller, and Viacheslav K. Gusiakov

The authors make the case that nuclear power plant operators have not responded adequately to known safety risks, that, for instance, the scientific community had been aware for some time that their safety mechanisms were inadequate to meet a potential tsunami risk.

ENE

Bulletin of the Atomic Scientists

67.5(September 2011) pp. 47–54

Surviving the one-two nuclear punch: Assessing risk and policy in a post-Fukushima world

Edwin S. Lyman

The author discusses various potential incidents at U. S. nuclear power plants that could create safety hazards since they have not been engineered for—for instance, more nuclear plants are threatened with significant damage from earthquakes than previously believed.

ENE

Bulletin of the Atomic Scientists
67.5(September 2011) pp. 55–65

Three Mile Island, Chernobyl, and Fukushima: An analysis of
traditional and new media coverage of nuclear accidents and
radiation

Sharon M. Friedman

An overview of media coverage includes not only mainstream media
with an online presence but also social media such as Facebook and
Twitter.

SEC, ENE, ADV

Physics Today – July 2011

Volume 64, Issue 7, p. 31

Adventures in scientific nuclear diplomacy

Siegfried S. Hecker

The author recounts his experiences working on nuclear security
issues involving Russia, China, North Korea, and South Africa.

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ENE

Physics Today – July 2011

Volume 64, Issue 7, p. 21

Scientists help make deserts into solar–energy hubs

Toni Feder

Reports on a conference and other initiatives organized by
Desertec to capture solar energy in deserts worldwide.

Physics Today – July 2011

Volume 64, Issue 7, p. 22

High–energy physicist turns solar–energy activist

Toni Feder

Brief report on Gerhard Knies, the founder of Desertec.

Physics Today – December 2011

Volume 64, Issue 12, p. 20

Desert solar hubs not new but risky

Andrew O Chadlick, Jr

Letter to the editor with a skeptical view towards large scale
solar energy projects.

END LINK

ENE

Physics Today – July 2011

Volume 64, Issue 7, p. 27

Supercomputing has a future in clean energy

David Kramer

Discusses the role of supercomputers in the materials science associated with energy technology.

ENE

APS Forum on Physics and Society Newsletter

Volume 40, Number 3 July 2011

Energy Critical Elements

Robert Jaffe, Jonathan Price, Murray Hitzman, and Francis Slakey

The article summarizes the findings of an APS panel on elements crucial to the energy industry, looking both at the elements at the heart of the study and at the recommendations of the panel.

BEGIN LINK

ENE

Bulletin of the Atomic Scientists

67.4(July 2011) pp. 8–13

The implications of Fukushima: The US perspective

Mark Cooper

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Bulletin of the Atomic Scientists

67.4(July 2011) pp. 14–17

The implications of Fukushima: The European perspective

Caroline Jorant

ENE

Bulletin of the Atomic Scientists

67.4(July 2011) pp. 18–22

The implications of Fukushima: The South Korean perspective

Soon Heung Chang

A series of three articles on the long term policy implications of the nuclear accidents in Japan that followed the 2011 earthquake and tsunami.

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Bulletin of the Atomic Scientists

67.4(July 2011) pp. 23–29

Moving to passive designs

Robert Rosner, Rebecca Lordan, and Stephen Goldberg

The authors make the case for pursuing the development of smaller reactors that incorporate passive safety features, features that kick in automatically in the event of a problem rather than ones that require some form of intervention to be activated.

ENE

Bulletin of the Atomic Scientists

67.4(July 2011) pp. 30–36

It's 2050: Do you know where your nuclear waste is?

Allison Macfarlane

The focus of this article is on developing medium term and long term solutions to the nuclear waste storage problem.

ENE

Bulletin of the Atomic Scientists

67.4(July 2011) pp. 37–42

A multinational fuel consortium: Obstacles, options, and ways forward

Olli Heinonen

A plan is suggested for reducing proliferation of enriched uranium and the capability of producing it by leasing nuclear fuel rods to countries that do not possess nuclear weapons, rather than having those countries enrich their own uranium.

ENE

Bulletin of the Atomic Scientists

67.4(July 2011) pp. 43–51

Nuclear power and the public

M. V. Ramana

Despite efforts to convince the public of the safety of nuclear plant technology, opinion polls continue to show that the public believes the technology is too risky. Until this issue is dealt with, it is unlikely that nuclear energy will grow.

ENE

Bulletin of the Atomic Scientists

67.4(July 2011) pp. 60–77

2010–2011 world nuclear industry status report

Mycale Schneider, Antony Froggatt, and Steve Thomas

The article describes the present nuclear power industry as aging and very likely in at least a short-term contraction due to the number of anticipated plant retirements exceeding the number of plants under construction.

ENE

Physics Today – May 2011

Volume 64, Issue 5, p. 18

Safety reviews, not shutdowns, are ordered in the wake of Fukushima

David Kramer

A news article looking at worldwide response to the nuclear crisis in Japan.

ENE

Bulletin of the Atomic Scientists

67.3 (May 2011) pp. 1–7

Stanford Ovshinsky: Pursuing solar electricity at a cost equal to or lower than that of coal electricity

Interview

The interviewee discusses recent advances in photovoltaic technology and the roadblocks that keep these advances from being fully exploited.

ENE, SEC

Bulletin of the Atomic Scientists

67.2(May 2011) pp. 51–58

South Korea in focus: The politics of spent fuel storage and disposal
Jungmin Kang

The spent fuel storage facilities in South Korea are rapidly filling up, and this poses a significant problem in a country that is increasing its reliance on nuclear energy.

ENE, SEC

Bulletin of the Atomic Scientists

67.3(May 2011) pp. 59–66

Inertial confinement fusion energy R&D and nuclear proliferation:
The need for direct and transparent review

Robert J. Goldston and Alexander Glaser

The authors discuss overlaps in technology associated with nuclear weapons and that associated with inertial confinement fusion research.

ENE

APS Forum on Physics and Society Newsletter

Volume 40, Number 2 April 2011

Thermal Rise Time in Nuclear Reactors after Loss of Coolant or Loss of Power Accidents

David Hafemeister

Written shortly after the Fukushima accident, this article lays out equations at the undergraduate level that provide an estimate for available response time in a class of nuclear power plant accidents.

ENE

APS Forum on Physics and Society Newsletter

Volume 40, Number 2 April 2011

The Case for Fission–Suppressed Hybrid Fusion

Wallace Manheimer

The author describes a potential fusion reactor design that would produce large quantities of fuel that could then be used in fission reactors.

CLI/ENE

APS Forum on Physics and Society Newsletter

Volume 40, Number 2 April 2011

Beyond Smoke and Mirrors: Climate Change and Energy in the 21st Century

Burton Richter (reviewed by Steven R. Rogers)

Book Review

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ENE

Physics Today – March 2011

Volume 64, Issue 3, p. 26

DOE looks again at inertial fusion as a potential clean-energy source

David Kramer

An update on the status of nuclear fusion research with a focus on progress at the National Ignition Facility and resource allocation issues.

Physics Today – August 2011

Volume 64, Issue 8, p. 9

US pursuit of inertial fusion

Wallace Manheimer

Letter to the editor discussing differing funding strategies in the US and abroad.

Physics Today – September 2011

Volume 64, Issue 9, p. 30

US narrows fusion research focus, joins German stellarator

Toni Feder

An update on the U.S. role in international fusion research projects.

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Physics Today – March 2011

Volume 64, Issue 3, p. 28

Obama calls for increased spending for electric vehicles and solar energy

David Kramer

Provides an overview of components of the State of the Union Address that related to energy issues.

ENE

Bulletin of the Atomic Scientists

67.3(March 2011) pp. 19–29

When safe enough is not good enough: Organizing safety at Chernobyl

Sonja D. Schmid

The author argues that we need to look beyond operator error in studying the Chernobyl nuclear accident: structural issues in the Soviet nuclear industry played a significant role.

ENE

Bulletin of the Atomic Scientists

67.2 (March 2011) pp. 38–46

Landscape portrait: A look at the impacts of radioactive contaminants on Chernobyl's wildlife

Timothy A. Mousseau and Anders P. Møller

The authors discuss recent evidence that the impact on wildlife of radiation released by the Chernobyl accident is substantially more significant than reported earlier.

ENE, SEC

APS Forum on Physics and Society Newsletter

Volume 40, Number 1 January 2011

The French Approach to Nuclear Waste

Declan Butler

An underground lab is being constructed, at which research into nuclear waste storage would be performed.

ENE

APS Forum on Physics and Society Newsletter

Volume 40, Number 1 January 2011

Liquid Fuel Nuclear Reactors

Robert Hargraves and Ralph Moir

The authors discuss the design of Liquid Fluoride Thorium Reactors, addressing issues including economics and safety.

ENE

Physics Today—August 2010

Volume 63, Issue 8, pp. 25–28

Small nuclear reactors raise big hopes

Paul Guinnessy

A discussion of the benefits of using a modular design for nuclear reactors, allowing for their construction in a single, controlled setting before shipping to the point of use.

ENE/SEC

Bulletin of the Atomic Scientists

66.4 (July 2010) pp. 11–22

Reassessing the nuclear renaissance

Paul Nelson

The author looks at nuclear power programs from an international perspective, discussing where nuclear power programs are mostly likely to develop.

ENE/SEC

Bulletin of the Atomic Scientists

66.4 (July 2010) pp. 23–32

Creating the ultimate nuclear reactor

William Sailor

The author describes three different reactor designs that hold promise for mitigating key concerns about nuclear power plants, including the problem of nuclear waste.

ENE, SEC

APS Forum on Physics and Society Newsletter

Volume 39, Number 3 July 2010

NRC Should Perform Non–Proliferation Assessment of Laser Enrichment Technology

Francis Slakey & Linda Cohen

The authors discuss what is known and not known about the uranium enrichment technology known as SILEX.

ENE

APS Forum on Physics and Society Newsletter

Volume 39, Number 3 July 2010

Sustainable Energy – without the hot air

David JC MacKay (reviewed by Peter Schroeder)

Book Review

CLI/ENE

APS Forum on Physics and Society Newsletter

Volume 39, Number 3 July 2010

Earth: The Sequel, The Race to Reinvent Energy and Stop Global Warming

Fred Krupp (reviewed by Michael DuVernois)

Book Review

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MIS, PUB, ENE

Physics Today—July 2010

Volume 63, Issue 7, p. 50

On Fact and Fraud: Cautionary Tales from the Front Lines of Science

David Goodstein; Bernard J. Feldman, Reviewer

Book review

Physics Today—November 2010

Volume 63, Issue 11, pp. 11–12

Cold fusion and reproducibility

Fred McGalliard, Scott R. Chubb, and Bernard J. Feldman

END LINK

ENE, SEC

Bulletin of the Atomic Scientists

66.3 (May 2010) pp. 50–56

It's Time to Give Up on Breeder Reactors

Thomas B. Cochran, Harold A. Feiveson, Zia Mian, M. V. Ramana, Mycle Schneider, and Frank N. von Hippel

An overview of technological, economic, and security issues related to breeder reactors.

ENE

Physics Today—April 2010

Volume 63, Issue 4, pp. 20–21

ITER collaboration defuses standoff

Toni Feder

Provides insight into the complexities of international cooperation in the context of a large scale fusion energy research project.

ENE

Physics Today—April 2010

Volume 63, Issue 4, pp. 22–24

Superstation in New Mexico would unite fragmented US electrical grid

Jermey N. A. Matthews

Transmission of electrical energy is an often overlooked but nevertheless key component in our energy structure. Modifications to the existing grid that will help the more efficient integration of renewable energy sources are discussed.

ENE

Physics Today—February 2010

Volume 63, Issue 2, pp. 18–20

Obama, Detroit push the limits of electric vehicle batteries

David Kramer

A discussion of the limitations lithium ion batteries impose on electric vehicles that rely on them.

BEGIN LINK

ENE, PUB
Physics Today—February 2010
Volume 63, Issue 2, pp. 10
Muons, deuterium, and cold fusion
Jacques Read

Physics Today—June 2010
Volume 63, Issue 6, pp. 10, 59
Hot topics in cold fusion
Melvin H. Miles and Ludwik Kowalski
These letters discuss issues relating to Cold Fusion and
Condensed-Matter Nuclear Science, including the extent to
which such research should be treated seriously by the
mainstream physics community.

END LINK

SEC/ENE
APS Forum on Physics and Society Newsletter
Volume 39, Number 1 January 2010
Nuclear Non-Proliferation: The Future Depends On Us
Pierre Goldschmidt
The author argues that we need to be proactive in dealing with
proliferation threats associated with increased worldwide reliance
on nuclear energy.

SEC/ENE
APS Forum on Physics and Society Newsletter
Volume 39, Number 1 January 2010
Energy, Environment, and Climate
Richard Wolfson (reviewed by Art Hobson)
Book Review

ENE

Bulletin of the Atomic Scientists

65.6 (November-December 2009) pp. 30-41

Should the United States resume reprocessing? A pro and con

Kate J. Dennis, Jason Rugolo, Lee T. Murray, Justin Parrella, David M. Romps, Christopher D. Holmes, Kurt Z. House, Benjamin G. Lee, Mark T. Winkler

A trip taken by a group of Harvard graduate students and postdocs led to this article, divided into two main sections (one part arguing for reprocessing and one against).

ENE

Bulletin of the Atomic Scientists

65.6 (November-December 2009) pp. 65-71

The real path to green energy: Hybrid nuclear-renewable power

Charles Forsberg

Explores how nuclear energy could be used to complement biofuels, solar power, wind power, and a hydrogen fuel economy.

ENE

Physics Today -- November 2009

Volume 62, Issue 11, pp. 28-30

LLNL, industry team boost truck fuel efficiency

David Kramer

LLNL studied the aerodynamics of trucks.

ENE

APS Forum on Physics and Society Newsletter

Volume 38, Number 4 October 2009

Hot, Flat and Crowded: Why We Need a Green Revolution--and How It Can Renew America

By Thomas L. Friedman

Reviewed by Peter Schroeder

Book Review

ENE

APS Forum on Physics and Society Newsletter

Volume 38, Number 4 October 2009

Physics for Future Presidents: The Science Behind the Headlines

By Richard A. Muller

Reviewed by Ruth Howes

Book Review

ENE

APS Forum on Physics and Society Newsletter

Volume 38, Number 4 October 2009

A Contract Between Science and Society: The Canadian Experience with Nuclear Waste Management

Elizabeth Dowdeswell

The author discusses the process by which Canada is moving towards geological disposal of nuclear waste. Particular attention is paid to involving input from the public.

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APS Forum on Physics and Society Newsletter

Volume 38, Number 4 October 2009

Materials for Sustainable Energy

George Crabtree

This article briefly summarizes technological challenges in seeking solutions to anticipated energy shortages and greenhouse gas emissions.

ENE

Bulletin of the Atomic Scientists

65.5 (September-October 2009) pp. 24-32

Dry-cask storage: How Germany led the way

Klaus Janberg, Frank von Hippel

The article describes a process for storing spent nuclear fuel for several decades while a longer-term solution is being sought.

ENE

Physics Today -- September 2009

Volume 62, Issue 9, pp. 24-25

US electricity grid still vulnerable to electromagnetic pulses

David Kramer

Our increasing reliance on electrical energy makes protection against EMPs a growing concern.

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Physics Today -- July 2009

Volume 62, Issue 7, pp. 24-27

Sweet solution or pie in the sky? Hybrids get new attention.

Toni Feder

The primary objective of the fusion-fission reactor would be to burn nuclear waste.

Physics Today—June 2010

Volume 63, Issue 6, pp. 59-60

Practical, near-term fusion power

Robert J. Burke

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APS Forum on Physics and Society Newsletter

Volume 38, Number 3 July 2009

Physics of Sustainable Energy: Using Energy Efficiently and Producing It
Renewably

David Hafemeister, Barbara G. Levi, Mark D Levine, and Peter Schwartz,
eds.

Review by Cameron Reed

Book Review

ENE

APS Forum on Physics and Society Newsletter

Volume 38, Number 3 July 2009

Initiatives to Enhance Nuclear Stability and Non-Proliferation in the 21st Century

Gerald E. Marsh and George S. Stanford

The author identifies initiatives that should be pursued, including ratifying the Comprehensive Test Ban Treaty and building a fast-breeder reactor.

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Physics Today -- May 2009

Volume 62, Issue 5, pp. 16-18

The competition is gaining on platinum as a catalyst for hydrogen fuel cells

Barbara Goss Levi

A news report on advances in the development of catalysts for fuel cells, with an eye towards use in automobiles.

ENE

APS Forum on Physics and Society Newsletter

Volume 38, Number 2 April 2009

Comments on Yucca Mountain and Nuclear Energy1

David Bodansky

A policy-oriented overview of the Yucca Mountain storage facility proposal and alternative nuclear waste proposals.

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APS Forum on Physics and Society Newsletter

Volume 38, Number 2 April 2009

Light Pipes: An FPS Student Fellowship Research Project

Erin Owens

Discusses the development of an online calculator of savings from installation of a light pipe, as part of an FPS student fellowship program.

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APS Forum on Physics and Society Newsletter

Volume 38, Number 2 April 2009

Review of the 2008 APS Energy Study, Energy Future: Think Efficiency

David Hafemeister

The author focuses on energy use by automobiles, but addresses use in buildings and appliances toward the end.

APS Forum on Physics and Society Newsletter

Volume 38, Number 3 July 2009

Letters to the Editor

Vladislav Bevc

David Hafemeister and Peter Schwartz respond

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Physics Today -- April 2009

Volume 62, Issue 4, pp. 25-26

Superconductors to boost wind power

Jermey N. A. Matthews

High temperature superconductors may allow the manufacture of wind turbines that produce twice as much power as current conventional models.

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Physics Today -- April 2009

Volume 62, Issue 4, pp. 63-65

Earth: The Sequel: The Race to Reinvent Energy and Stop Global Warming

Fred Krupp, Miriam Horn, and Mark A. Ratner, Reviewer

Book Review

ENE

Science and Engineering Ethics

Volume 15, Number 1 / March, 2009, pp. 19-23

Data Trimming, Nuclear Emissions, and Climate Change

Kristin Sharon Shrader-Frechette

The author argues a meaningful account of greenhouse gas emissions associated with nuclear power follows the full life cycle of the fuel.

ENE

Physics Today -- March 2009

Volume 62, Issue 3, p. 28

FutureGen could make a comeback

David Kramer

News report on a clean coal demonstration plant.

BEGIN LINK

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Physics Today -- March 2009

Volume 62, Issue 3, pp. 31-35

Physics in the oil sands of Alberta

Murray Gray, Zhenghe Xu, and Jacob Masliyah

Canada's oil sands have reserves comparable to those of Saudi Arabia, but there are technical hurdles that need to be overcome to extract the oil.

Physics Today -- December 2009

Volume 62, Issue 12, pp. 8-9

Efficiency and environmental effects in the oil sands of Alberta

Lloyd O. Timblin, Jr, Gary Stiles, Ezra Wood, Murray R. Gray, Zhenghe Xu, and Jacob H. Masliyah

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APS Forum on Physics and Society Newsletter

Volume 38, Number 1 January 2009

Issues in the Storage of Electric Power

By Ruth Howes and Sekazi Mtingwa

Given that demand for electrical energy varies during the day and production, particularly from renewable sources such as wind and solar, varies on its own schedule, there is an increasing need to develop effective energy storage systems. This article surveys existing technology and discusses potential future developments.

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APS Forum on Physics and Society Newsletter

Volume 38, Number 1 January 2009

The Revised Radiation Protection Standards for the Yucca Mountain Nuclear Waste Repository

By Robert Vandebosch and Susanne E. Vandebosch

This overview looks at one major policy issue related to the proposed Yucca facility.

APS Forum on Physics and Society Newsletter

Volume 38, Number 2 April 2009

Yucca Mountain Standards

Benjamin Ross

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Physics Today -- December 2008

Volume 61, Issue 12 pp. 43-47

Batteries and electrochemical capacitors

Héctor D. Abruña, Yasuyuki Kiya, and Jay C. Henderson

A largely technical discussion of electrical energy storage.

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Physics Today -- December 2008

Volume 61, Issue 12, pp. 29-30

Could 'green gasoline' displace ethanol as the biofuel of choice?

Researchers report advances in making renewable fuels that are compatible with the US petroleum infrastructure.

David Kramer

News story on research into the conversion of biomass into gasoline, an alternative to existing ethanol and biodiesel programs.

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Physics Today -- November 2008

Volume 61, Issue 11, pp. 47-52

Research needs for future internal combustion engines

Dawn K. Manley, Andrew McIlroy, and Craig A. Taatjes

Looks at the chemistry, fluid dynamics, and thermodynamics of internal combustion engines.

Physics Today -- April 2009

Volume 62, Issue 4, p. 10

Engines for the 21st century

Geoffrey A. Landis

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Physics Today -- August 2008

Volume 61, Issue 8, pp. 46-51

Geoscience research for our energy future

Donald J. Depaolo and Franklin M. Orr, Jr

Understanding how substances migrate through rock formations is of significance for problems such as carbon sequestration and long term nuclear waste disposal.

Physics Today -- February 2009

Volume 62, Issue 2, pp. 10-12

Geoengineering: What, how, and for whom?

Robert A. Frosch and Kevin E. Trenberth

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Physics Today -- August 2008

Volume 61, Issue 8, pp. 54-56

Nuclear Waste Stalemate Political and Scientific Controversies

Robert Vandenbosch, Susanne E. Vandenbosch, and John W. Poston Sr.,

Reviewer

Book Review

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Physics Today -- July 2008

Volume 61, Issue 7, pp. 28-33

Grand challenges in basic energy sciences

Graham R. Fleming and Mark A. Ratner

This article outlines five areas where fundamental research can have a significant impact on energy-related technology.

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Physics Today -- July 2008

Volume 61, Issue 7, pp. 35-40

Energy efficiency in the built environment

Leon R. Glicksman

Discusses what can be done, mostly with existing technology, to improve energy efficiency in residences and businesses.

Physics Today -- December 2009

Volume 62, Issue 12, pp. 9-10

Integrated approach for efficient buildings

Rebecca Barthelmie and Leon Glicksman

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Physics Today -- July 2008

Volume 61, Issue 7, pp. 42-47

Home photovoltaic systems for physicists

Thomas W. Murphy, Jr.

This first person account of designing and installing a home photovoltaic system brings relevant technical considerations to a level that most physics students will be able to readily understand.

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Physics Today -- July 2008

Volume 61, Issue 7, pp. 48-49

Education for the global energy challenge

Roel Snieder and Sally M. Benson

The authors argue for increased education—both in the classroom and through outreach programs—on energy related issues.

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APS Forum on Physics and Society Newsletter

Volume 37, Number 3 July 2008

The Essential Exponential! For the Future of Our Planet

By Albert A. Bartlett with Robert G. Fuller, Vicki L. Plano Clark, and John A. Rogers

Reviewed by Manish Gupta

Book Review

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APS Forum on Physics and Society Newsletter

Volume 37, Number 2 April 2008

Carbon-Free and Nuclear-Free: A Roadmap for US Energy Policy

Arjun Makhijani

A mostly policy-oriented discussion of how the triple threat of global warming, dwindling oil reserves, and nuclear proliferation can be addressed through seeking alternative energy sources and improving energy efficiency.

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Bulletin of the Atomic Scientists

64.1 (March-April 2008) pp. 28-33

Making nuclear energy work

Robert Rosner

This article begins with a look at the scientific process as applied to nuclear reactor design and goes on to discuss policy implications and future directions for the nuclear power industry.

Bulletin of the Atomic Scientists

64.2 (May-June 2008) p. 4

Arjun Makhijani, Yangbo Du, David A. Kraft, Curt A. Levis (Letters to the Editor)

Bulletin of the Atomic Scientists

64.3 (July-August 2008) p. 7

Paul Gunter and William Wharton Smith III (Letters to the Editor)

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APS Forum on Physics and Society Newsletter

Volume 36, Number 4 October 2007

The Origins of CAFE

Allan R. Hoffman

This personal history provides a nice case study for the impact that a scientist can have on important legislation.

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APS Forum on Physics and Society Newsletter

Volume 36, Number 4 October 2007

The CAFE Formula

David Hafemeister

This article gives several simple and explicit examples of how physicists can use their calculational skills to analyze energy issues. Some equations are analogous to those found in introductory physics courses.

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APS Forum on Physics and Society Newsletter

Volume 36, Number 4 October 2007

Nuclear Fuel Banks: A View From the South

Fernando de Souza-Barros

Establishing a centralized program for producing nuclear fuel may be the key to growth in the global nuclear power industry without proliferation of nuclear weapons.

BEGIN LINK

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Getting power to the people

Bulletin of the Atomic Scientists

63.5 (September-October 2007) pp. 26-43

Matthew L. Wald

A wide-ranging overview of energy options and what drives the need for exploring various options. This article may be useful to introduce a class to energy-related policies and technologies.

Bulletin of the Atomic Scientists

64.1 (January-February 2008) p. 4

Eugene (Gene) A. Rosa, Robert K. Musil (Letters to the Editor)

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ENE

Bulletin of the Atomic Scientists

63.4 (July-August 2007) pp. 19-20

Carbon dioxide on the move

Richard Doctor

This brief article points out the safety hazards of working with large quantities of carbon dioxide.

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APS Forum on Physics and Society Newsletter

Volume 36, Number 3 July 2007

The Grid: A Journey Through the Heart of our Electrified World, by Phillip F. Schewe,

Reviewed by Joe Levinger

Book Review

ENE

APS Forum on Physics and Society Newsletter

Volume 36, Number 3 July 2007

Physics of Societal Issues: Calculations on National Security, Environment,
and Energy, by David Hafemeister

Reviewed by Cameron Reed

Book Review

ENE

APS Forum on Physics and Society Newsletter

Volume 36, Number 2 April 2007

Big Coal: The Dirty Secret Behind America's Energy Future, by Jeff
Goodell

Reviewed by Louis Schwartzkopf

Book Review

ENE

Physics Today -- April 2007

Volume 60, Issue 4, p. 30

Interim Sites for Spent Nuclear Fuel Are of Limited Value

Jim Dawson

Brief story on a report by an APS Study Group.

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Physics Today -- March 2007

Volume 60, Issue 3, pp. 61-62

Kicking the Carbon Habit: Global Warming and the Case for Renewable and
Nuclear Energy and Energy for the Public: The Case for Increased Nuclear
Fission Energy

William Sweet, R. Stephen White, and Andrew C. Kadak, Reviewer

Book Review

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Physics Today -- March 2007

Volume 60, Issue 3, pp. 37-42

Solar Energy Conversion

George W. Crabtree and Nathan S. Lewis

Provides a good overview of various means to harness solar energy and the technological advances that will be needed to improve efficiency.

Physics Today -- October 2007

Volume 60, Issue 10, pp. 12-14

Solar Energy Conversion can be Small-Scale and Low-Tech

Robert Levy

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ENE

Physics Today -- December 2006

Volume 59, Issue 12, pp. 80-81

Reprocessing Spent Nuclear Fuel

David Bodansky

Discusses new approaches to reprocessing used nuclear fuel, addressing proliferation concerns.

ENE

Physics Today -- October 2006

Volume 59, Issue 10, pp. 38-44

Water in Polymer Electrolyte Fuel Cells: Friend or Foe?

Michael Eikerling, Alexei A. Kornyshev, and Anthony R. Kucernak

The focus of this article is on the science of fuel cells rather than policy implications.

ENE

Physics Today -- September 2006

Volume 59, Issue 9, pp. 27-28

Portugal Builds on Renewables Effort with \$78M Solar Plant

Karen H. Kaplan

A report on an 11-megawatt photovoltaic plant under construction.

ENE

Bulletin of the Atomic Scientists
62.4 (July-August 2006) pp. 14-17

Reprocessing: Just within reach?

Stephanie Cooke

An overview of current nuclear reprocessing technology and policy proposals.

ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 3 July 2006

Should the U.S. Reprocess Spent Nuclear Fuel?

Robert Vandebosch and Susanne E. Vandebosch

Primarily a policy-oriented discussion of a proposal to reprocess fuel.

ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 2 April 2006

Advanced Nuclear Reactors- their Use in Future Energy Supply

John F. Ahearne

Defines terminology and discusses policy issues.

ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 2 April 2006

Bombs, Reprocessing, and Reactor Grade Plutonium

Gerald E. Marsh and George S. Stanford

The authors argue that nuclear power will become increasingly important in the energy economy and therefore nuclear fuel will need to be recycled. The primary issue then is how it can be done safely.

BEGIN LINK

ENE

Bulletin of the Atomic Scientists

62.3 (May-June 2006) pp. 46-52

Stuck on a solution

Allison MacFarlane

An overview of both policy and technical issues related to the proposed Yucca Mountain nuclear waste storage facility.

Bulletin of the Atomic Scientists

62.5 (September-October 2006) pp. 5-7

Issue Volume 62, Number 5, September / October 2006

Letters to the Editor

Kenny C. Guinn, John Ensign, Luther J. Carter, Thomas H. Pigford, Rod McCullum, Allison MacFarlane

END LINK

ENE

Bulletin of the Atomic Scientists

62.2 (March-April 2006)

Chernobyl: Hardly the last word

Michael Flynn

A critique of the IAEA report on the health impact of the Chernobyl accident.

BEGIN LINK

ENE

Physics Today -- February 2006

Volume 59, Issue 2, pp. 19-20

Stronger Future for Nuclear Power

Paul Guinnessy

A comparison of the nuclear industry in the U.S. to that in other countries. Also includes some near term projections in the U.S. which probably were not borne out.

Physics Today -- January 2007

Volume 60, Issue 1, pp. 13-14

Nuclear Power's Costs and Perils

Walter Scheider and Alan Robock

Physics Today -- February 2007

Volume 60, Issue 2, p. 81

US Lack Nuclear-Power Infrastructure

Jim McEwen

Physics Today -- September 2007

Volume 60, Issue 9, pp. 14-16

Nuclear Power Challenges and Alternatives

William Morse, Wallace Manheimer, Richard Wilson, Gerry Wolff, Alan Robock, and Walter Scheider

END LINK

ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 1 January 2006

The End of Oil: On the Edge of a Perilous New World by Paul Roberts

The Hydrogen Economy: The Creation of the Worldwide Energy Web and the Redistribution of Power on Earth by Jeremy Rifkin

Both reviewed by John L. Roeder

Book Reviews

BEGIN LINK

ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 1 January 2006

Strawbale Construction - Low Tech vs. High Tech or Just Better Physical Properties?

Ken Haggard

Some interesting, basic physics is involved in this discussion of the use of straw bales for building walls.

APS Forum on Physics and Society Newsletter

Volume 35, Number 3 July 2006

More on Strawbale Construction

Robert Breche

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ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 1 January 2006

4S (Super Safe, Small and Simple LMR)

Akio Minato

Overview of design considerations for small sodium-cooled fast reactors and a discussion of potential uses in remote areas.

ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 1 January 2006

Nuclear Power and Proliferation

Gerald E. Marsh and George S. Stanford

The authors critique an APS study and suggest that the Nonproliferation Treaty should be modified to address proliferation issues that will arise as nuclear power expands globally.

ENE

APS Forum on Physics and Society Newsletter

Volume 35, Number 1 January 2006

The Status of Nuclear Waste Disposal

David Bodansky

After a n overview of the history of nuclear waste disposal in the United States, this article focuses on Yucca Mountain.

ENE

Physics Today -- January 2006

Volume 59, Issue 1, pp. 58-60

Nuclear Renaissance: Technologies and Policies for the Future of Nuclear Power

W. J. Nuttall and Michael T. Coyle, Reviewer

Book Review

ENE

Science and Engineering Ethics

Volume 11, Number 4 / December, 2005, pp. 518-520

Mortgaging the future: Dumping ethics with nuclear waste

Kristin Shrader-Frechette

A critique of proposed changes in regulations governing radiation exposure associated with long-term storage of nuclear waste.

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ENE

Physics Today -- July 2005

Volume 58, Issue 7, p. 34

World Wind Speeds Suggest Plentiful Energy

Toni Feder

Researchers used publicly available wind data to create a global map for wind energy potential.

Physics Today -- August 2006

Volume 59, Issue 8, pp. 11-14

Tough Questions About Wind Energy

Kenneth Perry, Frits de Wette, Terry Goldman, Cristina Archer, and Mark Z. Jacobson

END LINK

ENE

Physics Today -- July 2005

Volume 58, Issue 7, p. 33

Proliferation Is Key Issue in Nuclear Power Resurgence

Jim Dawson

An APS study group looks at the overlap in technologies associated with peaceful and military use of nuclear energy.

ENE

Physics Today -- May 2005

Volume 58, Issue 5, p. 32

Yucca Mountain E-mails Indicate Data Were Falsified

Jim Dawson

The emails include a reference by one scientist to keeping two sets of data files, one for his use and one to show Quality Assurance.

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Physics Today -- May 2005

Volume 58, Issue 5, pp. 28-30

Nuclear Power Needs Government Incentives, Says Task Force

Jim Dawson

A Department of Energy task force recommended financial incentives for a few nuclear power plants as a way to jump start the industry.

Physics Today -- February 2006

Volume 59, Issue 2, p. 11

Funding US Nuclear Power Plants

Edwin A. Karlow

END LINK

ENE

Physics Today -- March 2005

Volume 58, Issue 3, pp. 27-28

Windy Island Hosts Energy Trial

Toni Feder

Brief discussion of a wind energy trial in Norway, but useful for the practical considerations raised.

ENE

Physics Today -- February 2005

Volume 58, Issue 2, pp. 63-64

Three Mile Island: A Nuclear Crisis in Historical Perspective

J. Samuel Walker and Bernard L. Cohen, Reviewer

Book Review

ENE

APS Forum on Physics and Society Newsletter

Volume 34, Number 1 January 2005

Energy at the Crossroads: Global Perspectives and Uncertainties, by Vaclav Smil

Reviewed by Cornelius C. Noack

Book Review

BEGIN LINK

ENE

Physics Today -- December 2004

Volume 57, Issue 12, pp. 39-44

The Hydrogen Economy

George W. Crabtree, Mildred S. Dresselhaus, and Michelle V. Buchanan

A fairly comprehensive look at the challenges with hydrogen production, storage, and end use.

Physics Today -- June 2005

Volume 58, Issue 6, pp. 13-15

Thoughts on Starting the Hydrogen Economy

Peter J. Feibelman, Lewis A. Glenn, Phil Stripling, George W. Crabtree,

Mildred S. Dresselhaus, and Michelle V. Buchanan

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ENE

Physics Today -- December 2004

Volume 57, Issue 12, pp. 45-51

Transforming the Electric Infrastructure

Clark W. Gellings and Kurt E. Yeager

Contains a nice introduction to the development and functioning of the electrical grid, as well as to the changes necessary for the future.

ENE

Bulletin of the Atomic Scientists

60.5 (September-October 2004): pp. 30-35

Three Mile Island: health study meltdown: a quarter century after the accident at Three Mile Island, remarkably few questions about the health effects of that near-catastrophe have been asked--let alone answered.

Joseph Mangano

Reviews scientific literature on this issue.

ENE

Bulletin of the Atomic Scientists

60.5 (September-October 2004): pp. 66-68

Three Mile Island: A Nuclear Crisis in Historical Perspective by J. Samuel Walker)

Reviewed by John Abbotts

Book Review

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ENE

Physics Today -- September 2004

Volume 57, Issue 9, pp. 29-30

Court Rules Against 10 000-Year Radiation Safety Standard at Yucca Mountain

Jim Dawson

The court ruled that the EPA must appropriately account for National Academy of Sciences findings.

Physics Today -- December 2004

Volume 57, Issue 12, pp. 12-14

Yucca Mountain Nuclear Waste Containment Standard a Hot Topic

Dick Schmidt, Thomas Bjerstedt, Wenonah Hauter, Ron Bourgojn, and Cameron Reed

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ENE

APS Forum on Physics and Society Newsletter

Volume 33, Number 3 July 2004

Out of Gas: The End of the Age of Oil by David Goodstein

Reviewed by Don Lichtenberg

Book Review

ENE

Physics Today -- July 2004

Volume 57, Issue 7, pp. 47-52

Basic Choices and Constraints on Long-Term Energy Supplies

Paul B. Weisz

Good resource on facts and figures regarding energy use.

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ENE

Physics Today -- July 2004

Volume 57, Issue 7, pp. 53-55

Thoughts on Long-Term Energy Supplies: Scientists and the Silent Lie

Albert A Bartlett

The author argues that the energy supply issue cannot be addressed without looking at a primary underlying cause of anticipated shortages: population growth.

Physics Today -- November 2004

Volume 57, Issue 11, pp. 12-19

Long-Term Energy Solutions: The Truth Behind the Silent Lie

Mark Meier, Douglas Davidson, Frank R. Haig, Gregory Weston, Brian Cluggish, David J. Wesolowski, David B. Goldstein, Bernard L. Cohen, Eric Swager, Caroline L. Herzenberg, William Morse, Albert A. Bartlett, and Paul Weisz

Physics Today -- April 2005

Volume 58, Issue 4, pp. 12-17

More Options Offered for Long-Term Energy Solutions

Karo Michaelian, Brian A. Tinsley, Arthur Smith, Russell Seitz, James A. Van Vechten, Paul B. Weisz, and Albert A. Bartlett

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APS Forum on Physics and Society Newsletter

Volume 33, Number 3 July 2004

Purex and Pyro are Not the Same

William H. Hannum, Gerald E. Marsh, and George S. Stanford

The authors point out that not all nuclear fuel reprocessing techniques are the same and hence the risks and benefits of each should be analyzed on a case by case basis.

APS Forum on Physics and Society Newsletter

Volume 34, Number 1 January 2005

Another View of the Role of Nuclear Power

Richard L. Garwin

APS Forum on Physics and Society Newsletter

Volume 34, Number 1 January 2005

Response to Garwin's Paper

William H. Hannum, Gerald E. Marsh, George S. Stanford

APS Forum on Physics and Society Newsletter

Volume 34, Number 1 January 2005

Richard Garwin again

Richard L. Garwin

APS Forum on Physics and Society Newsletter

Volume 34, Number 1 January 2005

Oil, CO₂, and the Potential of Nuclear Energy

Robert W. Albrecht and David Bodansky

APS Forum on Physics and Society Newsletter

Volume 34, Number 2 April 2005

A Limit to Growth of Nuclear Fission Power?

Arthur Smith

APS Forum on Physics and Society Newsletter

Volume 34, Number 2 April 2005

There is No Such Thing as a Proliferation-Proof Nuclear Fuel Cycle.

W.K.H. Panofsky

APS Forum on Physics and Society Newsletter
Volume 34, Number 2 April 2005
Response to Arthur Smith's Letter
Robert Albrecht and David Bodansky

APS Forum on Physics and Society Newsletter
Volume 34, Number 2 April 2005
Nuclear Power Know-how is Here and Should be Used
William H. Hannum, Gerald E. Marsh, George S. Stanford

APS Forum on Physics and Society Newsletter
Volume 34, Number 2 April 2005
Weaponizability of Reactor-Degraded Plutonium
Alex De Volpe

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ENE

Physics Today -- April 2004
Volume 57, Issue 4, pp. 27-28
DOE Warms to Cold Fusion
Toni Feder

By itself, this article does not raise many ethical issues, but put into the larger context of the cold fusion story, it can raise issues related to how resources are allocated (time, money, journal space) when a large portion of the scientific community is skeptical about an idea.

Physics Today -- September 2004
Volume 57, Issue 9, p. 14
Seeking Answers From Cold Fusion Review
Ludwik Kowalski

Physics Today -- January 2005
Volume 58, Issue 1, p. 31
Cold Fusion Gets Chilly Encore
Toni Feder

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ENE

Physics Today -- December 2003

Volume 56, Issue 12, pp. 34-35

MIT Study Sees Nuclear Power as Green Weapon Against Global Warming

Jim Dawson

The report, summarized by the article, looks at issues related to cost, safety, proliferation, and nuclear waste.

Physics Today -- June 2004

Volume 57, Issue 6, pp. 11-13

Nuclear Power One of Several Green Weapons Against Global Warming
Edwin Norbeck, Robert Clark-Phelps, and Ernest Moniz

Physics Today -- January 2005

Volume 58, Issue 1, p. 15

Up on the Roof, Another Green Weapon

Iain R McNab

END LINK

ENE

Bulletin of the Atomic Scientists

59.6 (November-December 2003): pp. 34-42

Atoms for peace: did the 50-year-old Atoms for Peace program accelerate nuclear weapons proliferation? The jury has been in for some time on this question, and the answer is yes.

Leonard Weiss

Discusses the origin of the program and looks at links between it and nations joining the nuclear club.

BEGIN LINK

ENE

APS Forum on Physics and Society Newsletter

Volume 32, Number 4 October 2003

Energy for Society From Space

Arthur Smith

This commentary arguing that satellites can be used to capture more of the sun's energy sparked two follow-ups.

APS Forum on Physics and Society Newsletter

Volume 33, Number 1 January 2004

Space Solar Power: An Idea Whose Time Will Never Come?

Steve Fetter

APS Forum on Physics and Society Newsletter

Volume 33, Number 2 April 2004

Earth vs. Space for Solar Energy, Round Two

Arthur Smith

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ENE

Bulletin of the Atomic Scientists

59.5 (September-October 2003): pp. 46-51

Between MOX and a hard place: it costs more, it's as dangerous to make as a bomb, and burning MOX creates almost as much plutonium as it gets rid of. Other than that, it's a great idea.

Adolfo Reparaz

Does it make sense to convert weapons-grade plutonium into mixed oxide fuel for nuclear power plants?

ENE

APS Forum on Physics and Society Newsletter

Volume 32, Number 3 July 2003

The New Economy of Nature: The Quest to Make Conservation Profitable,
Gretchen C. Daily and Katherine Ellison

Reviewed by Marty Epstein

ENE

APS Forum on Physics and Society Newsletter

Volume 32, Number 3 July 2003

Energy and Society (An Introduction), by Harold H. Schobert,

Reviewed by William J. Makofske

ENE

Physics Today -- May 2003

Volume 56, Issue 5, pp. 65-67

Energy and the Environment

James A. Fay, Dan S. Golomb, and Marc H. Ross, Reviewer

Book Review

ENE

Bulletin of the Atomic Scientists

59.1 (January-February 2003): pp. 70-73

Wind Power in View: Energy Landscapes in a Crowded World Edited by

Martin J. Pasqualetti, Paul Gipe, and Robert W. Righter

Reviewed by Jennifer Weeks

Book Review

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ENE

APS Forum on Physics and Society Newsletter

Volume 32, Number 1 January 2003

Nuclear Power and Nuclear Proliferation

H.A. Feiveson

The author argues that an expansion of the nuclear power industry significant enough to make a significant dent in the global warming problem will cause an unavoidable increase in the risk of proliferation of nuclear weapons.

APS Forum on Physics and Society Newsletter

Volume 32, Number 2 April 2003

Pro Nuclear Power

Bertram Wolfe

Point/No Counterpoint

Bruno Comby

Two letters related to the previous article.

END LINK

ENE

Science and Engineering Ethics

Volume 8, Number 4 / December, 2002, pp. 561-578

Ethical and economic issues in the use of zero-emission vehicles as a component of an air-pollution mitigation strategy

Tim Duvall, Fred Englander, Valerie Englander, Thomas J. Hodson and Mark Marpet

The authors argue that the California mandate for zero-emission vehicles is unethical and should be replaced by a policy that is more market-driven.

ENE

Bulletin of the Atomic Scientists

58.5 (September-October 2002): pp. 22-24

Wasted at the wellhead. (Energy).(natural gas).

Paul Gretton-Watson.

Discusses the practice of burning off natural gas that is a byproduct of pumping oil from the ground.

ENE

APS Forum on Physics and Society Newsletter

Volume 31, Number 4 October 2002

The Causes of the Chernobyl Event

Jacques Frot

A brief summary of both the causes and effects of the Chernobyl accident. This does not delve deeply into technical details.

ENE

APS Forum on Physics and Society Newsletter

Volume 31, Number 4 October 2002

Chernobyl: The Effects on Public Health?

Andre Aurengo

A fairly detailed look at radiation levels, predicted cancers and observed cancers following the Chernobyl accident.

ENE

Bulletin of the Atomic Scientists

58.3 (May-June 2002): pp. 28-37

Lowering the bar: the government wants to save money by loosening radiation exposure standards--how low will it go?

LeRoy Moore.

This discussion of radiation standards looks at competing exposure models: the linear, no-threshold model and the threshold model. It also provides interesting insight into policy formulation in a political and scientific environment.

ENE

Physics Today -- April 2002

Volume 55, Issue 4, pp. 80-81

Megawatts and Megatons: A Turning Point in the Nuclear Age?

Richard L. Garwin, Georges Charpak, and John F. Ahearne, Reviewer
Book Review

BEGIN LINK

ENE

Physics Today -- April 2002

Volume 55, Issue 4, pp. 38-39

Special Issue The Energy Challenge

Stephen G. Benka

A brief overview of energy use and carbon dioxide emission issues; not designed as a stand-alone article.

Physics Today -- April 2002

Volume 55, Issue 4, pp. 40-47

Meeting Energy Challenges: Technology and Policy

Ernest J. Moniz and Melanie A. Kenderdine

As the title suggests, this is a policy-oriented article. National and global energy data and projections are used as the basis for the discussion.

Physics Today -- April 2002

Volume 55, Issue 4, pp. 48-53

Physics in Oil Exploration

Brian Clark and Robert Kleinberg

A variety of techniques are used to identify petroleum reserves, including resistivity measurements, [precision gravitational measurements, and satellite imaging. Sensors have also become part of the drilling process.

Physics Today -- April 2002

Volume 55, Issue 4, pp. 54-60

New Designs for the Nuclear Renaissance

Gail H. Marcus and Alan E. Levin

Provides a concise overview of reactor design (present and proposed) and design challenges.

Physics Today -- April 2002

Volume 55, Issue 4, pp. 62-67

Renewable Energy: Progress and Prospects

Samuel F. Baldwin

Looks at photovoltaic, wind, and biomass energy sources.

Physics Today -- April 2002
Volume 55, Issue 4, pp. 69-75
Hydrogen: The Fuel of the Future?

Joan M. Ogden

A comprehensive look at hydrogen as an energy carrier, examining production, distribution, end use, and safety issues.

Physics Today -- October 2002

Volume 55, Issue 10, pp. 10-12

Energy Possibilities: Windows, Windmills, and Satellites

Claes G. Granqvist and Ken Dragoon

Physics Today -- November 2002

Volume 55, Issue 11, pp. 12-95

Energy Issues for Vehicles: R&D, Carbon Sequestration, Fuel Conversion

Daniel R. Cohn, John B. Heywood, Ernest J. Moniz, Ramesh Gopalan, Vladislav Bevc, and Joan Ogden

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ENE

APS Forum on Physics and Society Newsletter

Volume 31, Number 2 April 2002

Gaps in APS Position on Nuclear Energy

Gerald E. Marsh and George S. Stanford

Commentary on the APS position paper "Nuclear Energy: Present Technology, Safety, and Future Research Directions: A Status Report".

Includes a link to the original paper.

APS Forum on Physics and Society Newsletter

Volume 31, Number 2 April 2002

Nuclear Energy--A POPA Status Report

David Bodansky

A review of the above referenced report.

END LINK

ENE

APS Forum on Physics and Society Newsletter

Volume 31, Number 2 April 2002

Advanced Fast Reactor: A Next-Generation Nuclear Energy Concept: Yoon I. Chang.

This overview of advanced fast nuclear reactors addresses issues such as passive safety, nonproliferation, and nuclear waste.

ENE

Bulletin of the Atomic Scientists

58.1 (January-February 2002): pp. 16-19

The big "what-if." (Nuclear Transport).

Bret Lortie.

Puts potential risks of transporting nuclear materials by rail in the context of a train accident in Baltimore.

ENE

APS Forum on Physics and Society Newsletter

Volume 31, Number 1 January 2002

Losing Weight to Save Lives: A Review of the Role of Automobile Weight and Size in Traffic Fatalities

Marc Ross and Tom Wenzel

The authors analyze crash statistics to make the case that one cannot assume that reducing vehicle weight will increase the fatality rate associated with automobile accidents.

ENE

Physics Today -- November 2001

Volume 54, Issue 11, pp. 23-24

As Decision Time Approaches for Radioactive Waste Repository, a Mountain of Issues Still Unresolved

Jim Dawson

Discusses environmental issues associated with the proposed nuclear waste storage facility.

ENE
APS Forum on Physics and Society Newsletter
Volume 30, Number 4 October 2001
Our National Energy Situation is a Mess!
Albert A. Bartlett
A physicist testifies before Congress.

ENE
APS Forum on Physics and Society Newsletter
Volume 30, Number 4 October 2001
Why Nuclear Power Failure in the Market Place is Irreversible
Amory Lovins
The author argues that the reason the nuclear power industry is not continuing to grow in the U.S. is primarily economic: there are cheaper ways to accomplish the same ends.

ENE
APS Forum on Physics and Society Newsletter
Volume 30, Number 4 October 2001
Expanding Nuclear Power Worldwide to Prevent Climate Change: William Sailor
The author presents a case for nuclear power playing a major role in the global energy mix, arguing that proliferation concerns can successfully be addressed.

BEGIN LINK

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APS Forum on Physics and Society Newsletter

Volume 30, Number 4 October 2001

Is Radiation an Essential Trace Energy?

John Cameron

The author discusses two studies indicating that low doses of ionizing radiation can actually be beneficial to humans rather than problematic, as commonly assumed.

APS Forum on Physics and Society Newsletter

Volume 31, Number 1 January 2002

Our Daily Minimum of Uranium

John Williams

APS Forum on Physics and Society Newsletter

Volume 31, Number 2 April 2002

Criticism of a Criticism

John Laughlin

and

Validity of Epidemiology

Tom Rokoske

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APS Forum on Physics and Society Newsletter

Volume 30, Number 4 October 2001

The Pebble-Bed Modular Reactor (PBMR): Safety and Non-Proliferation Issues

Edwin S. Lyman

A new nuclear reactor design is discussed. While it shows potential for addressing safety concerns, the timetable for development is critiqued.

APS Forum on Physics and Society Newsletter

Volume 31, Number 1 January 2002

Pebble Bed Reactors: Andrew Kadak

A different perspective on the pebble Bed Reactor.

END LINK

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Bulletin of the Atomic Scientists

57.5 (September 2001): pp. 6-7

A waste of space? (nuclear waste disposal on the sun)

Mike Moore

A brief summary of the challenges and costs of disposing of radioactive waste by shooting it to the sun.

ENE

Physics Today -- August 2001

Volume 54, Issue 8, pp. 51-52

Chernobyl Record: The Definitive History of the Chernobyl Catastrophe

Richard F. Mould and Gennady Gorelik, Reviewer

Book Review

ENE

APS Forum on Physics and Society Newsletter

Volume 30, Number 2 April 2001

How to Think About Proliferation and Nuclear Power

William C. Sailor.

The author explores the relationship between a civilian nuclear power program and a nation acquiring nuclear weapons.

ENE

APS Forum on Physics and Society Newsletter

Volume 30, Number 2 April 2001

Nuclear Energy: Will It Save the World?

Bertram Wolfe

“The world is growing, is using up the available fossil fuels that are contaminating the globe. The only available solution is a major worldwide expansion of nuclear power.”

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Bulletin of the Atomic Scientists

57.2 (March 2001): pp. 34-41

Magical THINKING.

Arjun Makhijani, Hisham Zerriffi and Annie Makhijani

This is an early look at transmutation as one way to handle nuclear waste.

It could be interesting to compare it with more recent articles.

Bulletin of the Atomic Scientists

57.3 (May 2001): p4

The integral fast reactor could do it (letter)

George S. Stanford

(see also response following)

END LINK

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Bulletin of the Atomic Scientists

57.1 (January 2001): pp. 11-13

Remember the Maine Yankee.(controversial plan for disposal of nuclear power plant waste).

Colin Woodard

This article discusses issues related to nuclear waste disposal from the perspective of a decommissioned nuclear power plant.

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Bulletin of the Atomic Scientists

56.2 (March 2000): pp. 42-46

Edwin Lyman and Steven Dolley.

Accident prone (analysis of the accident at the Tokaimura nuclear facility in Japan)

This article is useful not only in the context of a study of the nuclear energy fuel cycle but also for its illustration of the perils of cutting corners in safety procedures.

Bulletin of the Atomic Scientists

56.3 (May 2000): p4

Perspective, please (Letter)

Bertram Wolfe

Bulletin of the Atomic Scientists

56.5 (September 2000): p3.

Special means special (letter)

Dean E. Abrahamson

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APS Forum on Physics and Society Newsletter

Volume 29, Number 1 January 2000

Nuclear Power and the Large Environment

David Bodansky

Text of a talk in which the author argues that the nuclear power debate has, up until this point, not focused on the most important risks.