CONTACT *SCIENCE*

Letters to the Editor
May be submitted via e-mail (at science_letters @aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for clarity or space. They may appear in print and/or on the Internet. Letter writers are not consulted before publication.

Subscription Services
For change of address, missing issues, new orders and renewals, and payment questions, please contact AAAS at Danbury, CT: 800-731-4939 or Washington, DC: 202-326-6417, FAX 202-842-1065. Mailing addresses: AAAS, P.O. Box 1811, Danbury, CT 06813 or AAAS Member Services, 1200 New York Avenue, NW, Washington, DC 20005 • Other AAAS Programs: 202-326-6400

Member Benefit Contacts
For Credit Card: MBNA 1-800-847-7378; Car Rentals: Hertz 1-800-654-2200 CDP#343457, Dollar 1-800-800-4000 #AA1115; AAAS Travels: Betchart Expeditions 1-800-252-4910; Life Insurance: Seabury & Smith 1-800-424-9883; Other Benefits: AAAS Member Services 1-202-326-6417.

Reprints
Ordering/Billing/Status 800-407-9190; **Corrections** 202-326-6501 **Permissions** 202-326-7074, FAX 202-682-0816

Internet Addresses
science_editors@aaas.org (for general editorial queries); science_news@aaas.org (for news queries); science_letters@aaas.org (for letters to the editor); science_reviews@aaas.org (for returning manuscript reviews); science_bookrevs@aaas.org (for book review queries); science@science-int.co.uk (for the Europe Office); membership@aaas.org (for member services); science_classifieds@aaas.org (for submitting classified advertisements); science_advertising@aaas.org (for product advertising)

Information for Contributors
See pages 99 and 100 of the 1 January 1999 issue or access www.sciencemag.org/misc/con-info.shtml.

Editorial & News Contacts
North America 1200 New York Avenue, NW, Washington, DC 20005 Editorial: 202-326-6501, FAX 202-289-7562 News: 202-326-6500, FAX 202-371-9227 • Bureaus: Berkeley, CA: 510-652-0302, FAX 510-652-1867, San Diego, CA: 760-942-3252, FAX 760-942-4979, Chicago, IL: 312-360-1227, FAX 312-360-0537, Pacific Northwest: 541-342-6290
Europe Headquarters: Bateman House, 82-88 Hills Road, Cambridge, UK CB2 1LQ; (44) 1223-326500, FAX (44) 1223-326501 Paris Correspondent: (33) 1-49-29-09-01, FAX (33) 1-49-29-09-00
Asia News Bureau: Dennis Normile, (81) 3-3335-9925, FAX (81) 3-3335-4898; dnormile@twics.com • Japan Office: Asca Corporation, Eiko Ishioka, Fusako Tamura, 1-8-13, Hirano-cho, Chuo-ku, Osaka-shi, Osaka, 541 Japan; (81) 6-202-6272, FAX (81) 6-202-6271; asca@os.gulf.or.jp • China Office: Hao Xin, (86) 10-6255-9478; science@public3.bta.net.cn • India correspondent: Pallava Bagla, (91) 11-271-2896; pbagla@ndb.vsnl.net.in

A Responsible Energy Future

Rush Holt

Affordable energy is the lifeblood of modern society. Without it, the network of transportation, agriculture, health care, manufacturing, and commerce deemed essential by many of the world's inhabitants would not be possible. Yet our use of energy releases sulfur dioxides, metals such as cadmium and mercury, and greenhouse gases and other noxious pollutants that damage our quality of life. Moreover, when we use fossil fuels, we make ourselves dependent on an energy source that cannot be relied upon forever.

With the apparent conditions in the United States today, what could induce us to change our energy habits now? Almost daily, gasoline prices reach record lows, and U.S. citizens have not waited in line for gas for decades. Our fossil fuel engines and turbines burn more cleanly and more efficiently now than ever before.

"Our current investment in research and development in energy is nothing short of irresponsible."

Nevertheless, the truth is that our current system of energy use is unsustainable; our energy habits will have to change. For, although fossil fuel supplies are limited, total energy use will rise rapidly in coming years as global economic development continues. What is more, according to many scientists, current greenhouse gas emissions—let alone any greater emissions in the future—threaten to produce serious environmental changes.

Some scientists have predicted that projected greenhouse gas emissions for the coming decade could produce climate changes as significant as an increase of 5° to 6°F (2.8° to 3.3°C) in average global temperature, a one-half meter rise of sea level, and even an increase in the intensity of hurricanes and tropical storms. Worst-case scenarios? Perhaps. But other negative effects of fossil fuel pollution, such as smog, acid rain, water contamination from leaky fuel tanks, oil refinery emissions, and oil spills, are already very real in many regions of the globe, in both industrialized and developing nations. Even without global warming, these immediate problems are enough to warrant change.

For developing countries, cheap, polluting, and inefficient technologies are often the only affordable option. The United States is in a position to develop better alternatives. We should take the initiative. Our current investment in research and development in energy is nothing short of irresponsible. The U.S. national energy product exceeds $500 billion annually. Yet barely 1% of that amount is invested in R&D. The President's Committee of Advisors on Science and Technology (PCAST) has recommended that the Department of Energy's applied energy-technology R&D budget be nearly doubled to $2.4 billion by 2003. In my view, this recommendation should be considered a minimum figure.

This money would be well spent. Those who position themselves to manage the coming changes in energy use will stand to gain enormously. American companies would profit from the development of more efficient, cleaner—and therefore more desirable—technologies; the American economy would benefit from the expertise built up by further research; and American citizens would benefit from a cleaner, safer environment.

Just as the federal government has a responsibility to invest now in basic medical research to ensure the health of present and future generations, so it has a responsibility to invest now in basic energy research to ensure both our near-term and long-term economic and environmental health. The justification for this commitment seems clear to many of us trained in science and technology. Yet with energy prices low, the necessary political will may be lacking. Will apprehension about negative effects—greater pollution and global climate change—provoke people to examine our energy habits and take action? Or will the possible economic opportunities attract attention and provoke action? A huge potential market awaits, promising an opportunity to enhance the quality of life of all the world's people. Meanwhile, researchers and policy-makers must continue to seek ways to make relevant to our communities the nature of our global energy challenges and opportunities.

The author is a U.S. Congressman from central New Jersey, a physicist, and the former Assistant Director of Princeton University's Plasma Physics Laboratory.