Health and behavior

Energy research drop-off: Less spending, fewer advances

By Dan Vergano USA TODAY

Despite dependence on foreign oil that keeps the United States embroiled in the Middle East, and amid fears of global warming, spending on research to create new sources of energy has plunged over the past two decades, analysts report.

Evidence suggests the drop has directly stifled advances in technology. "We're definitely under-investing in energy research," says Antonia Herzog of the University of California-Berkeley.

An analysis unveiled by Herzog and colleagues at the recent American Chemical Society meeting shows that public and private spending on all energy research peaked at more than \$12 billion in 1980 and has fallen to less than \$4 billion. Her team found that energy patents, which economists see as an indicator of innovation, have declined in "lock step" with the spending decline. In 1994, patents bottomed out at a low of 54, from a high of 228 in 1981.

It's a marked trend," says Brent Barker of the Electric Power Research Institute in Palo Alto, Calif., a non-profit research institute funded by the producers of 90% of the mortgaging your future.'

A number of factors, Herzog says, have driven the drop:

► Low gas prices evaporating the oil crisis atmosphere that drove

up research levels in the '70s. ► Two decades of research cuts

at the Department of Energy. ► Power industry deregulation

squelching private research efforts. When utilities were regulated monopolies, they typically planned 30 years ahead, Barker says. Now, they look for quick incremental innovations that offer immediate benefits to their shareholders. As a result, breakthrough technologies never happen.

Over the summer, President Bush had suggested research would receive more attention in his energy policy.

Last week, at a National Academies of Engineering Workshop on Current and Emerging Energy Issues in Washington, D.C., participants called for critical looks at the technologies needed to wean the nation off foreign oil and usher in a power system run on hydrogen. 'Right now, it's an ideological debate how we're going to get there. We need some real data," says James Wolf, a private energy consultant who headed the power subcommittee at the workshop.

The so-called "hydrogen econonation's electricity. "When you give my" envisioned by many would up on research, essentially you're consist of non-fossil-fuel energy sources — nuclear, solar and wind,

Research & sales

The field of energy ranks relatively low in terms of the percentage of its net sales spent on research and development (R&D).

Industry % of net sales spent on R&D

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for example - creating electricity that makes hydrogen to power homes and vehicles. Experts predict that to forestall increases in global temperatures triggered by common fossil fuels such as oil and coal, economies worldwide will have to create such an energy infrastructure in this century.

Too often, Barker says, the government expects industry to build the energy infrastructure of the future, while power companies expect the same of government. If both fall short, he says, the public will still depend on foreign oil.

FDA to inspect vaccine plant

By Rita Rubin USA TODAY

The only company that makes anthrax vaccine plans today to move a step closer to resuming shipments to the military.

But civilians anxious over scattered reports of anthrax exposure still will be unable to get vaccinated

BioPort Inc. will be submitting documents with the Food and Drug Administration to resolve issues the agency has had with the company's anthrax vaccine plant in Lansing, Mich.

The FDA will have to review the documents and conduct another inspection of the facility before deciding whether to approve BioPort's application for a supplemental license, required whenever extensive renovations are made to a drug manufacturing plant.

The FDA is expected to move quickly, but neither the agency nor the company could predict when the review and inspection would be completed.

After an eight-day inspection uncovered potential problems at the extensively renovated facility in November 1999, the FDA halted vaccine shipments, although the company has continued production. The FDA's most recent inspection, in October 2000,

still found deviations from what the agency considers to be good manufacturing practices. Problems ranged from inadequate hand washing to failure to investigate adverse events reportedly linked to the vaccine, including a death in June 2000.

Such problems don't necessarily mean the vaccine is unsafe, but they show that the company cannot adequately guarantee that it is.

We have taken the appropriate corrective action and have responded to all of those items in the final submission to the agency," says BioPort spokeswoman Kim Brennen Root.

It is not yet clear whether the anthrax vaccine produced while BioPort was bringing its manufacturing



In Lansing, Mich.: BioPort continues to make anthrax vaccine while waiting for FDA permits to ship.

process up to FDA standards will be cleared for use by

"At least some of that vaccine may be available for release," Root says.

Root would not say how much vaccine has been produced.

"In the interests of national security, I can't really talk with you about what our capacity is or at what

level we've been producing it," she says. The vaccine is thought to ward off anthrax only after six shots are given over a period of 18 months.

Although the company has received thousands of calls and e-mails from civilians eager to get the anthrax vaccine, Root says the government has no plans to stockpile it for non-military use.

"Our first obligation is to meet that demand for vaccine from the Department of Defense," Root says. "Once that obligation is met, we would certainly respond to the appropriate federal agencies to create a civilian stockpile if necessary.'

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USA TODAY. Crossword Edited by Charles Preston

THE CAPITAL GANG

By D. J. DeChristopher

ACROSS 1 Beasts of burden

Soothing application

- **9** Scotch connector **13** Came to rest 14 "I cannot tell
- **15** Took the vinegar out of 16 Oliver's request **17** Anglers' poles

18 Bring together

- **19** Author and JFK confidante 22 Peggy or Pinky **23** Musical medleys 24 For Love of Ivy singer
- **30** Vibrant whirring sounds **31** Rhone tributary **32** Winning serve __ out a living
- **37** Knot of wool **38** Koppel, of ABC **39** Leaflike plant part **41** Small amounts

42 Down East senator

36 Island near Taiwan

_ New Guinea 46 Totally awesome! **47** Oscar nominee for *Pulp* Fiction **53** Tipping

54 Verdi princess

55 Architect van der Rohe

- **57** Sups in style **58** Footnote abbreviation **59** Largest continent
- **61** Network of nerves **62** Sassy Carter

60 Old Testament book

- 2 Not symmetrical **3** New Zealand thrush Te Kanawa **4** 1979 Super Bowl champs
- DOWN **1** Sweet potato
- **5** Pickle container
- **6** Bitter drug **7** Pot tops **8** Tableland
- **9** Oak bark derivative **10** Peruvian pal 11 Seeger and Sampras

12 Hesse's river

- **15** Armor for the thigh
 - **21** Crazy avian? **24** Help a felon
 - **27** Koran's religion **32** Motorcar 33 Animal stomach

25 Two-wheeler

26 Reproduced

- **34** Otherwise **37** Bail provider **39** Small madder flowers
- _ acid 47 Philosophy in the Bedroom author **48** Hideout

44 Michael, of Monty Python

20 Alejandro and Fernando

58

- 28 W. E. B. DuBois first headed it **29** *Reuben, Reuben* star
- **40** Old English gold piece **41** Author Dinesin 42 Major musical works **43** Video game mecca
- **49** Agree **50** Entrance for a collier
- **51** Seine tributary **52** Young or Armstrong **56** Mineo, of cinema
 - N O N O A E L O E R N I E O C T A N F O O T N O T E S BARKSATTHEMOON LEMLLASSOESGUN BOWWOWTHEOR A Q U A A P L G O N E P U T S O N T H E D O G TIEBBUSSTOPBGPO

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