ERDA Recasts Nation's Energy Goals

In a major policy change this week, the Energy Research and Development Administration (ERDA) sharply decreased its emphasis on breeder reactors and elevated solar-generated electricity to a new high priority as a long-range energy source. ERDA issued a sweeping "National Plan" for energy development, called for a reassessment of the breeder reactor question, and announced proposed budget changes strongly reflecting the new shift of emphasis.

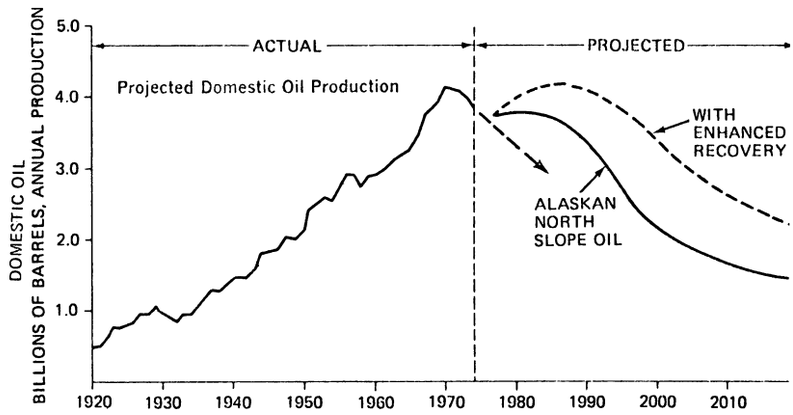
Citing the "critical need" for alternative energy sources and the danger of overemphasizing a single approach, ERDA's National Plan calls for five major changes in the country's energy R&D effort:

- A new attack on technical problems associated with existing systems, particularly coal and light-water reactors.
- An immediate focus on conservation, with primary targets being automotive transportation, buildings and industrial processes.
- A Synthetic Fuels Commercialization program to extract environmentally desirable gaseous and liquid fuels from coal and shale.
- Boosting solar electric power to a higher status, comparable to fusion and breeder reactors, as a long-range energy option.
- Implementation of "under-used" technologies, such as solar heating and cooling and the use of geothermal power.

The goal of these efforts will be to decrease the nation's dependency on petroleum fuels, which now account for 75 percent of domestic energy consumption. By the year 2000, ERDA hopes petroleum, coal and uranium will each produce about 30 percent of needed energy, with solar and other sources contributing small, but rapidly increasing amounts. Coal now accounts for 20 percent of the nation's energy; uranium, for only about two percent.

While discussing the latest report—which will be periodically updated, beginning next January—ERDA Administrator Robert C. Seamans Jr. noted that the United States has twice before made such a major shift in its energy sources: from wood to coal in the 19th century and to oil and gas in this century. But each of these transitions took nearly 60 years, he said, and the present transition must be accomplished in perhaps half that.

Seamans also ruled that a previous Atomic Energy Commission environmental impact statement on the breeder reactor was inadequate, and that more research—including a study of alternatives—must be conducted before the reactor can be cleared for commercial development. The original AEC plan had called for a $1.7 billion program to demonstrate feasibility of breeders by 1983, clearing the way for commercial power generation using breeder reactors by 1987. The new ERDA plan does not call for any significant amounts of power generation by breeders in this century, while the AEC report projected that they might supply half the nation's electricity by the year 2000.



Underscoring the shifts in emphasis is ERDA's supplemental appropriations request to the Congress for fiscal year 1976, which begins this week. Solar energy is to receive an additional $19 million—of which $10 million will go for solar-generated electricity development. An additional $32 million is requested for energy conservation efforts, $26 million for fossil fuel research, and $42 million for uranium fuel-cycle activities. The breeder reactor is the biggest loser—down $60.5 million.

Under the most optimistic circumstances, ERDA still expects U.S. energy consumption to roughly double during the next 25 years. If no new initiatives were taken to develop alternative sources or conserve energy, ERDA estimates consumption might rise by a factor of 2.5. A previous estimate by the Federal Power Commission showed energy tripling.

An electron theory for cancer

In spite of the billions of dollars poured into the search for the cause of cancer, scientists have yet to show how chemicals, viruses or radiation manage to trigger cancer at the basic molecular level. Nor have they identified the essential chemical difference between a normal cell and a cancer cell.

Now a bold new explanation for cancer is being proposed by Albert Szent-Györgyi, Nobel Prize-winning biologist working at the Marine Biological Laboratory in Woods Hole, Mass. The theory is that cancer cells lack a vital electron transfer system, and hence engage in reckless cell division. Szent-Györgyi outlined his theory and scientific evidence for it at a meeting of Nobel laureates held in Lindau, Germany, last week. He will also be publishing a book on the subject.

Cancer theories are a dollar a dozen, of course, but what makes Szent-Györgyi's plausible is that it is buttressed by both his and other scientists' experimental findings. What's more, Szent-Györgyi is one of the world's distinguished biochemists.

A Nobel Prize-winner in 1937 for his discovery of vitamin C, he has also been recognized for his pioneering work in how food is converted into energy, which led later to the discovery of the Krebs cycle, and for being the first scientist to reproduce the contractions of muscle in a test-tube. Szent-Györgyi's research in oxidation, proteins and the chemistry of the body's energy system led him to further study the way energy travels between living cells and most recently, how the body's electrochemical energy system might relate to cancer.

Just over two years ago, Szent-Györgyi reported his first significant evidence leading to his electron theory for cancer. He established, to the surprise of many in the scientific community, that the structural proteins of the body are able to perform the role of semiconductors, which is not the case with soluble proteins.

Specifically, he found that structural proteins in cells are the color of "a good Swiss chocolate." He then found that the color is due to the presence of an electron transfer system in these proteins which transfers them into free radicals—substances which contain an imbalance of electrons.

Subsequently, he has found that,