

ing documentation in the EPA's 94-page critique of the impact statement are likely to provide environmentalist groups with powerful ammunition if they eventually go to court to get the LMFBR programme stopped and, according to one EPA source, if the AEC does amend its impact statement by incorporating some of EPA's criticisms, the economic justification for the breeder could be shot to pieces.

As for the question of plutonium toxicity, that is likely to provide a considerable headache for the AEC for a long time to come. The draft NEPA statement concludes that the entire breeder reactor programme is likely to cause only 2.2 deaths in the United States through radiation from power plants, fuel reprocessing plants and waste disposal facilities. This statement was made in spite of acknowledgments elsewhere in the AEC's document that there is a good deal of uncertainty about the health effects associated with plutonium.

One of the chief uncertainties is the question of potential damage to the lungs from tiny particles of plutonium which have been inhaled, a topic which has recently been thrust into the public spotlight by two nuclear experts working for the NRDC, Dr Arthur Tamplin and Dr Thomas Cochran. Even before the draft impact statement was published, Tamplin and Cochran launched a vigorous attack on the AEC's radiation standards, contending that they are based on an unrealistic assumption that radiation from inhaled plutonium particles is evenly distributed throughout the lungs. They argue that tissue immediately surrounding a particle of plutonium is getting a radiation dose of about 4,000 rems a year, but if the dose is averaged out over the entire lung, it amounts to only 0.003 rems per year. They therefore argue that the AEC should modify its regulations governing the release of plutonium into the atmosphere by a factor of 115,000.

Although the EPA critique takes up no position on the validity of Tamplin and Cochran's theory, it says that "a scientific basis for estimating health effects from plutonium particulates is not available at this time". The EPA therefore recommends that the AEC's final environmental impact statement should indicate what steps the commission would take if the Tamplin-Cochran thesis turns out to be correct, and it also suggests that "as a final alternative, the commission may want to examine what tradeoffs exist in delaying the implementation of a full-scale commercial LMFBR programme until the risks from particulate doses, as compared to those from a uniform lung dose, are on a more firm scientific basis so that meaningful public judgment on the risks and benefits of the programme

Commoner lays into AEC

ONE of the most stinging criticisms of the Atomic Energy Commission's draft environmental impact statement on the liquid metal fast breeder reactor (LMFBR) programme has come from Barry Commoner, an outspoken champion of the environmentalist movement. Commoner has charged in two press conferences that the Atomic Energy Commission (AEC) has been deliberately suppressing information on the potential of solar energy in order to make its case for the breeder reactor look good.

The accusation stung, for AEC chairman Dixie Lee Ray immediately put out a statement labelling the charge "totally false" and has steadfastly maintained that the commission is not trying to suppress any information relating to the LMFBR programme.

The nub of the dispute is this. Commoner, who is chairman of the Scientists' Institute for Public Information (SIPI) maintains that the AEC's draft impact statement fails to take into account a very optimistic report on the potential for solar power which was prepared for Dr Ray last year. The report, prepared by a panel of experts which assisted Ray in putting together her recommendations for a five-year energy research and development programme, concluded that solar power technologies could be developed to produce about 21% of the electrical energy needs of the United States by the end of this century.

The AEC's draft statement, how-

ever, said that "the outlook appears to be that solar energy has little potential as an economic, major source of electricity for several decades" and it went on to suggest that "the use of solar energy will not materially reduce the need for alternative electrical energy sources in the foreseeable future". The impact statement makes no reference at all to the panel's report.

The dispute about solar energy is central to the debate about the need for the LMFBR programme because, if the panel's projections prove to be correct, solar energy would be able to supply almost as much power as the breeder reactor by the year 2000 (see Table 1). And that would shoot to pieces the AEC's contention that the breeder reactor is desperately needed to avoid an energy crunch toward the end of the century. Commoner contended in his first press conference on the matter that "the AEC may be involved in another Washington coverup—this time an attempt to cover up the Sun".

According to the SIPI, which together with the Natural Resources Defense Council brought the suit which forced the AEC to produce the impact statement on the LMFBR programme, the statement's failure to consider solar energy as a viable alternative to the breeder programme is "a gross dereliction of the AEC's duty to the demands of NEPA [the National Environmental Policy Act] and the courts".

Table 1 Summary produced by SIPI of contributions to projected United States electrical demand (year 2000)

Energy source	Generating capacity (millions kw)	Percentage of projected demand
Solar technologies		
Photovoltaic	140	7
Solar thermal	40	2
Heating and cooling of buildings	35	2
Wind	170	9
Ocean thermal	Not available	Not available
Bioconversion	25	1
Total, solar technologies	410	21
Geothermal	80	4
Conservation of electricity	236 (minimum)	12 (minimum)
Grand total	765	37
LMFBR programme	435	23

is possible".

As for the safety of the LMFBR, the EPA critique of the draft impact statement says that the AEC has not been sufficiently qualitative in its assessment for the EPA examiners "to conclude what safety approaches will be taken in many important areas". It is suggested that the AEC should include in its final impact statement a comparison of the risks of the LMFBR and the LWRs.

In view of the serious deficiencies which have been unearthed in the AEC's draft impact statement, the EPA

has recommended that AEC lawyers should go to court to get an extension of the June 14 deadline for producing the final impact statement, while the SIPI and the NRDC have suggested the more drastic step of writing another draft statement and following that up with a final document.

Whether or not the AEC sticks to the present deadline, it can be certain that its final impact statement will be challenged in the courts if it fails to meet the objections raised by EPA or other critics