

Mr. FISHER. Yes. I certainly agree with that, and I think in what I call the first phase, the research and development phase, which would be a negotiated phase between the Government and companies with a willingness and capacity to do imaginative research and development, every effort should be made by the Government to stimulate a variety of approaches and exploratory work, just as has been done, for example, by the Atomic Energy Commission over the years with private companies.

The CHAIRMAN. Well, one of the best things we did in the atomic energy reactor program was to invite proposals from industry. In that case, with Government help and with various approaches being made, different types of reactors were developed. I think this has paid off handsomely to the American public.

Mr. FISHER. We have the advantage of a very rich and diversified technology in this country and we ought to take full advantage of that by setting in motion a variety of approaches to this problem. On your point about the costs, I think that is vital in the end, of course, before any investment decisions will be made. I hope that the Government could encourage and even insist that they include not only the engineering, scientific, and technical work, but also as much as possible keep cost records on any pilot plant operations, and even provide them with some standard treatment for overhead and items of that sort. Then, at the end of what I would hope would be a rich and diversified research and development phase, it would be possible, within some limits of probability, to project from the pilot operations costs of commercial scale operations a basis by which you might at least begin to compare different techniques.

The CHAIRMAN. I know very little about the technology or the state of the art of this business, but if one can draw from the experience that we have had in other programs it would appear that while research and development prototype facilities will reveal certain information, I think what you suggest makes a lot of sense. It is my impression that you probably will really not get a good cost picture until you have built and operated a large-scale facility. There is a vast difference between trying to extrapolate, no matter how detailed the data, from a prototype facility and comparing it with a full scale operation.

Mr. FISHER. That is right.

The CHAIRMAN. We learned in the nuclear power program that the prototype reactor will reveal certain technical shortcomings but when you build a large-scale facility, you really begin to get the facts that you need to have as far as costs are concerned. That is something I do not think one can avoid doing. Would you agree?

Mr. FISHER. Oh, yes. That certainly is true, although to make the decision on the first full-scale operation, you have to project on the basis of technical and cost information on a pilot scale, even though you know you may go wrong.

The CHAIRMAN. I do not oppose prototypes. Do not misunderstand me. I was adding that caveat. We had the same thing in the saline water program. I think there is a danger sometimes that one jumps to conclusions, because of a prototype operation, that the costs are going to be such and such. That was my point of observation.