

So it has to be pretty broad. But having made the estimates, then Dr. Lieberman's group can go ahead and try to say "All right, if that is the situation then these are the quantities of wastes we might anticipate."

Mr. BROWN. But we are talking here about a growth rate in which installed capacity is probably doubling every 10 years or something of that magnitude.

Dr. TAPE. That is right.

Mr. BROWN. This kind of a logarithmic curve produces tremendous changes. For example, that figure of 3 acres of salt mine, if you are doubling every 10 years you are going to need 6 acres in 10 years, and 12 acres in another 10 years.

Dr. LIEBERMAN. That is the figure of 2000. You are quite right, if indeed beyond 2000 the demands for energy increase at the rate of doubling every 10 years, then that is what we are going to have to contend with.

Dr. TAPE. There are some other problems that are going to enter into this, if you start looking that far in the future and assume a doubling every 10 years. The water that is available for cooling may be a limitation on how rapidly this expansion transpires. There may be a number of other limitations that come in. We may not be able to double every 10 years. So there are many other factors that come into this, not all related to nuclear power in any way.

Mr. BROWN. Your projections haven't gotten to the point where you see any leveling off of this process? You have not projected a steady state situation.

Dr. TAPE. Well, we have cut off at the year 2000 because we realize that to continue that kind of a projection is hard to rationalize right now. I think most of us—there are many utility people too—have considerable difficulty just imagining what these systems are going to be like 30 years from now.

Mr. BROWN. Unfortunately, there are a lot of curves in our society today which have this same characteristic. What about the growth in other areas of the world, other than the United States? Do you project similar patterns of growth in installed nuclear capacity?

Dr. TAPE. We do the same thing on an international basis, not in the Soviet bloc sphere but in the rest of the world. These percentages vary depending on the country, the locale, and so on.

One can be misled a little bit because there are areas in which the present electrical generating capacity now is very small. So they are in a catch-up role and may be doubling every 5 years. Others that are somewhat more like ourselves, then their growth rates are something like ours.

On the other hand, in certain areas of Europe where they have, for example, been importing coal from us, the economic pressures on them to go to the nuclear route are higher than they would be, let's say, in our country. So one has to make a region-by-region evaluation. One finds lower growth rates, higher growth rates, one finds some areas where nuclear is moving more rapidly than we are. England, for example, had more megawatts on the grid than we did. These are matters of time and how they develop.