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Copper (Cu) .............. 0.000%
Ferric Iron (Fe) ........... 0.005%
Insoluble Matter ........... 0.000%
Manganese (Mn) ........... 0.000%
Material not ppt. by NH4OH ........... 0.025%
Phosphate (PO4) ........... 0.000%
Zinc (Zn) .............. 0.000%

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GENERAL ELECTRIC people say—

H. A. WINNE

Vice President in Charge of Engineering Policy,
Chairman of Nucleonics Committee

NUCLEAR POWER: Most people, I believe, when they think of atomic energy, visualize it as a potential source of vast amounts of industrial power—and such it ultimately may prove to be.

Atomic—or nuclear—energy will appear in the pile or nuclear reactor in the form of heat. We see no way of converting directly to electricity the energy released from the fissioning atom. So to use this energy in quantity, we must get the heat out of the pile. One way of doing this would be to pump a liquid or gas through the pile and then through a kind of steam boiler, which would then generate steam. This steam would then be used to drive a steam turbine-generator to produce electricity. In other words, as I visualize an atomic power plant, the atomic pile and some auxiliary equipment will merely replace the fuel-fired steam boiler, and from that point on the atomic plant will be the same as the one using coal or oil as a fuel.

Consequently, it seems to me that the first cost of an atomic power plant will be at least as high as that of a fuel-fired plant under normal conditions. As to operating cost, it is entirely possible that in the years to come the cost of nuclear fuel will be competitive with that of coal or oil. Today we cannot give any reliable estimate of its cost, for there are too many factors which we do not have the knowledge and experience to evaluate.

But in areas where electric power is today available readily and at reasonable cost, we must not look for any revolutionary reduction in power cost due to the advent of atomic energy. On the average the cost of fuel accounts for only 20–25 per cent of the total price paid by the consumer for fuel-generated power today, so even if we got nuclear fuel free we could expect only 20–25 per cent reduction in power costs. Of course this reduction would be tremendously significant, but not in keeping with some of the more fanciful prognostications.

On the other hand, because nuclear fuel is such an extremely concentrated source of energy, there is the very definite possibility that atomic energy may bring economical elec-

tric power to areas where the transportation costs on conventional fuel are extremely high.

However, I do not visualize small atomic power plants springing up in every isolated area. To be efficient and economical I think an atomic power plant will necessarily be of large capacity—perhaps at least a hundred thousand kilowatts—and it may require a supporting chemical plant to reclaim partly used fuel.

The picture as to where atomic central power stations may first prove economical is not at all clear, but I feel reasonably sure that it will evolve favorably as our scientists and engineers carry along their developments. We are not yet ready technically to build a 100,000-kilowatt atomic power plant, and we won’t be for a long time.

Chamber of Commerce.
Portland, Oregon.
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