

The second economic factor which must be considered in planning the power reactor programme is the future power demand in Canada, the resources which will be available to meet the demand, and their probable cost. Early in 1954 an Advisory Committee, consisting of representatives of the various power corporations and provincial power commissions, was appointed. This committee serves as the medium by which those in the power business may be kept abreast of our progress and at the same time may assist us in giving the correct economic evaluation to the programme. While I wish to make it clear that I accept the sole responsibility for the forecast which I shall give you, I wish to acknowledge the assistance we have received from the members of the committee in compiling the statistics on which the forecast is based. These statistics show that the annual increase in power demand for the country as a whole will be at the rate of 5-1/2 per cent for the period 1955-1960, 5 per cent for the period 1960-1965, and 4-1/2 per cent for the period 1965-1975. Such an increase will require a total installed capacity of approximately 40 million kilowatts by 1975 as against the present installed capacity of 15 million kilowatts. They also show that the average national cost of power to all consumers is now 0.69¢ per kilowatt hour. I need hardly point out that these figures require careful interpretation. First, the estimated percentage of increase over the next twenty years varies considerably from region to region. In the first five-year period, 1955-1960, the estimated average annual increase is as high as 8 per cent in some regions and as low as 4 per cent in others. Similarly, with the figures for the present national average cost, regional costs vary from a high of 3.97¢ per kilowatt hour to a low of .5¢ per kilowatt hour. The wide variation of conditions from region to region also must be taken into account in any attempt to make an appraisal of the power sources, and their cost, which will be available to meet the future demand. In some regions there are large resources of economic hydro power which are as yet untapped. In other regions thermal fuels are available in abundance, and at a low cost. Therefore, in assessing the probable role of atomic power in meeting the future power demand, we must look at those regions where hydro power is unavailable or can only be made available with extremely high transmission costs, or where conventional thermal fuels are not available or, if available, at a high cost. It so happens that southern Ontario is such a region.

The rate of growth in the demand for power in southern Ontario for the past thirty years has been approximately 5.7 per cent per annum. It seems reasonable to assume that this rate of growth will continue during the next twenty years, unless we are prepared to put a limit on the future development of this region - a proposition which will hardly be entertained by this audience. This rate of growth represents a doubling in demand every twelve and one-half years. On this basis, the estimated power demand in southern Ontario in 1975 would be about 9,500,000 kilowatts. On the completion of the St. Lawrence development in 1959 there will be approximately 4,600,000 kilowatts of capacity, leaving approximately 5,000,000 kilowatts of capacity to be provided between 1960 and 1975. With the