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THE PROBLEM OF INDUSTRIAL DEVELOPMENT
IN THE COLUMBIA BASIN AND THE PACIFIC NORTHWEST

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In order to evaluate the economic potential of the Columbia Basin Project, we need to develop several kinds of perspectives. On the one hand, a time perspective--both short and long run--and on the other hand, a spatial perspective--regional and national.

From the national viewpoint, there seems little reason to question the economic justification of the project. By 1975 the population of the United States will approach 200 million people. The total is increasing at the rate of about 2 million per year. One important implication of such growth is that food resources will have to expand. By 1975 we must feed five for every four that we feed now. Extending the time period to the year 2,000, it is clear that the need for food will have to increase 50% over the amount supplied at the present time. Therefore, insofar as the agricultural contribution of the Columbia Basin Project is concerned, the need for the new agricultural land to be provided by the project is abundantly clear.

In the Columbia Basin by 1965, there should be 600,000 new acres of land under cultivation. The introduction of the new land will lead to a projected population of over 150,000 people in the Basin by 1965. This is what bringing water to desert lands can do. The contrast is to be found in the population of 10,600 in the area in 1930. This represented the sum total of those that the land could sustain in its unirrigated status.

In 1930 the 34-million kilowatt potential of the Columbia System was virtually untapped. By 1952 the Pacific Northwest had an installed capacity of about 4,900,000 kilowatts of which 4,500,000 was hydroelectric. The Federal system alone totalled 2,462,400 kilowatts in 1952 and this had grown to 4,702,000 kilowatts by July 1, 1957.

Here is indeed presented a remarkable potential for growth in land, population, energy, wealth and welfare.

Having in mind this picture of growth, I propose to pursue the historical and economic implications of past growth and to relate these factors to the requirements for economic development. It is something to consider that the ultimate capacity of the Columbia River system is 34 million kilowatts of firm power. There are various national estimates which point out that by 1970 we shall be using twice as much power per worker in industry as we do now, and up to five times as much in homes. The two add up to an estimated consumption of electric power in 1975 nearly four times as great as present consumption. One could conclude that the implications for growth in the

Northwest on the basis of power alone are great. However, it is necessary to examine the problem of growth in specific terms.

There are various theoretical aspects of the economic problem which are relevant to development in the Basin. In the first place, it is difficult to speak of the growth of industry in general or to speak of growth based on power development or growth deriving from power development. In order to understand the circumstances of growth in industry it is first necessary to differentiate categories of industry. By delineating categories of industry, it is then possible to locate fairly precisely the specific areas of growth. For example, as a first approximation it is necessary to know which industries are export industries and which are not. Such a division establishes which industries sell to the regional Northwest market and which sell outside of it in other, and possibly major, American markets. Growth is to a large degree determined by the division of industry between the export and the domestic regional market.

Work has been done in the field of regional economic growth by Economists Rutledge Vining and by William Wolman of Washington State College. Both of these writers have proposed a method of differentiating industry. I have adopted the structure as proposed by Wolman.

The latter scheme distinguishes export, import competing, import handling, and purely residentiary types of industry. (At some point, we in the Department of Commerce and Economic Development look forward to the construction of an input-output analysis of the Washington State economy and perhaps of the Pacific Northwest. We believe that the classification system proposed herein will be of assistance in this study.)

The export industries are those industries which dispose of most of their output in external markets, that is, in American markets outside of the Northwest. Such industries could originate because of competitive advantages possessed by the region with respect to one or more factors of production -- for example, the Northwest has always had such an advantage in its forest products industry. The Northwest has long been a leading supplier of such products because it could sell them competitively.

The import competing industries are those which share the regional market with similar products from other areas. These industries sell goods in the Northwest in competition with suppliers from out of state. Such industries can arise in a number of ways. They may be industries which come into being in the developing regional market simply to meet a need for a particular good. They can also arise as a result of technological change which makes it possible for them to enter into competition with already developed firms.

A third category of industries is the import handling. These are concerned with assembling and distributing imported commodities within the region. In other words, these industries supply to the Northwest items produced in other regions. The import handling industry, therefore,

may be in direct competition with other local industry.

A final category of industry is the purely residentiary. It supplies local markets, makes use of local materials and would include industries such as the service industries.

The important consideration about the export sector is that it is not related to the size or condition of the regional market. Its position is dependent upon the growth of demand in the national economy, since the national economy provides the market. Of course, the technical character of the demand is also a factor, since changing technology can alter demand for the particular product.

The import competing industry is dependent for development on the regional market. That is, the regional market is its only market. Output from this industry either appears as final consumer goods or goes as inputs into other regional industries or to export industry.

The import handling group also depends purely on development of regional markets. The group is called into being only by the existence, as well as growth, of the regional market. Some of these will compete with the import competing industries. The residentiary industries, on the other hand, being completely dependent upon the fortunes of the local market, are not in competition with any other of the regional industries.

This paper supports the theory that regional economic development is determined to a critical degree by the development of the export sector. Growth in the other sectors of the regional economy is most likely to derive from growth in the export sector alone.

This point may be examined in a number of ways. In the first place, we know that for domestic industries to expand there must be some force or set of forces causing the regional market to expand. Here we are not concerned with normal growth which derives from growth from population or productivity but are concerned with the forces which cause a regional market to expand relative to the rest of the country. And a force which would bring this condition about, this relative improvement in economic position, is most likely to emerge in the export sector--the sector that is independent of growth in the regional economy. When industry in the export sector expands, population and other factors of production are attracted to the region. This resulting growth of population with the attendant demands for goods and services results in an expanded regional domestic market. For example, there was a large growth in population and size of the domestic market during World War II as a result of the tremendous expansion of the transportation equipment industries in the state of Washington because the war had called for an expanded production of both aircraft and ships. Large migrations of skilled workers into the state occurred. It was as a result of these migrations that the regional market, the domestic Northwest market, developed a larger absolute size. It is not likely that the growth would have occurred otherwise. The war brought a demand for ships and planes. The Northwest was able to participate in satisfying the demand--which was a demand arising outside of the region. The

planes and ships were exported, and it was growth in the export sector which brought in people sufficient to represent growth in the regional market.

Other aspects of the growth thesis are familiar ones. The nature of a region's development is dependent upon its ability to produce competitively. The region must possess a competitive advantage either in resource base, the population and labor force, in the transportation cost structure or a combination of these. These are the sectors which give the region its competitive potential and help to decide which industries will be the export industries in the region.

It should be noted further that the potential in a region's economic structure is not a fixed thing. Because of technological changes, economic potential in the region will change. For example, it was as the result of development in the electrolytic processing of ores that the hydroelectric power potential of the Columbia System came into its own. In such an industry power is an important part of the cost of production. The hydro power was so low cost as to give the region a competitive advantage and therefore enable it to become a major processor of raw aluminum.

Other considerations are related, of course, to power. It should be pointed out that in most all of ordinary manufacturing, energy costs are not an important factor entering into the cost of production. Fuel costs or energy costs are more important in the primary industries; that is, for raw material processing -- thus, as indicated above, the importance of energy heretofore in the production of aluminum. Otherwise, energy is used for heat or it is used for motive power. Hydroelectricity is a relatively cheap source of motive and electro-metallurgical power but a relatively expensive source of heat. This cost relation, therefore, has up to recently given Washington and the Northwest a competitive advantage in respect to those industries in which electric energy is a technical necessity and represents a high proportion of the total cost.

Wolman has pointed out that before World War II the use of electric power by manufacturing industry in the state was not significantly greater than in the nation, and that the expansion in the use of energy came in the electro-processing industry, where the Northwest's low-cost hydro-power gave the region an advantage over other regions.

There are other considerations which affect competitive position and one of the most important of these for the Northwest is that of freight costs. Washington can be regarded as an island economically, surrounded by a wide band of sparse population and traversed by great distances to major eastern markets. Because of this remote position, individual industries which expect to compete in the export markets must be able to offset freight cost diseconomies with substantial processing economies. Historically, Washington has possessed such advantages in its forest products and agricultural products. Typically, the state has been a supplier of such raw materials to the eastern markets, into which markets these products could penetrate effectively. Since World War II aircraft and paper products with a few others could be added to this list of primary export products.

The whole Pacific Northwest has been resource-oriented. It has been chiefly identified as a raw material supplier in the east. And to a considerable extent, the same will continue to be true in the future.

It is true that the war altered the pattern to a considerable degree, with aircraft and ships becoming the major export products. In addition, with the postwar development of the electro-processing industries, the state has achieved a better balance in its export sector.

I emphasize here again that the war was a period of growth in the export sector of the economy. It was after the war that the domestic sector grew most rapidly. Population with expanded income per capita had grown, new financial resources had poured into the area -- all of which combined to produce larger domestic markets. Therefore, domestic industry expanded on the basis of an increased regional market. It was a market which increased in absolute size. As you are aware, rapid rate of growth, while a condition of economic progress, is not by itself a sufficient one. It is the absolute size of a market which is of significance. By contrast to California with its population of 14 1/2 million people, Washington with 2 1/2 million people is still to be considered a relatively small market. It is for this reason that various assembling plants are located in California directly near those regional markets, with sufficient produce to take care of the smaller Washington markets.

These series of items which I have been relating as aspects or factors of regional economic growth should be kept in mind as we discuss specifically the possibilities for growth in the Columbia Basin.

The heart of the project is the new farm land -- 600,000 acres by 1965. By that year it has been estimated if all land is brought into production, the Basin will produce annually some \$81 million in crops and approximately \$46 million in livestock and dairy products. Such agricultural production will inevitably bring growth in various supporting processing plants. So you could expect growth of small industry of this type.

If population grows to its projected total of 150,000 and more by 1965, this would mean tripling in population over the next decade which itself indicates a basis for considerably more development in the area. It indicates the possibility for the development of domestic industry of the type which would serve the local market. Most of this industry is likely to remain relatively small scale and be of a supporting character. At the same time, from the point of view of promoting development in the region, every effort should be made to establishment of export industries of any size possible because, to return to a theoretical point, this industry would create employment and income in the area which is not dependent on the local market.

With respect to the power potential of the Basin and its implications for growth, it can be pretty well established that the Northwest has seen the last of new electro-metallurgical industry of major size. For example, there will be no more construction of major aluminum processing plants in the Basin for the purpose of taking advantage of low-cost hydroelectric power. This does not mean that there will not be additions to existing

plants in the area--there are too many who have capital invested in these plants in already substantial amounts. The basic reason why there will be no new major additions to capacity is because the 2-mill prime power of the Northwest is no longer of sufficient competitive advantage to displace power produced in the East with coal. It must be remembered that to the 2-mill per kw cost in the Northwest must be added 1 1/2 mills per kw as freight cost. Because the efficiency of coal has been increased over 100%, it is possible in an integrated by-product in the Ohio Valley to get 2-mill power from strip-mined coal. Since at the same time any producer in the Ohio Valley is within 200 miles of 75% of the primary American aluminum fabricators, the total cost of production per kw cannot be reached by the Northwest. The Northwest's power as such is no longer a prime attraction to the major electro-metallurgical industries. This power becomes merely one among other factors.

Already this transition because of the changed cost structure is apparent. In 1950 Washington state alone produced 47% of the United States aluminum supply and the whole Northwest produced over one-half. Today, even if it were to operate at full capacity, the Northwest would produce less than one-third of the total United States supply. Kaiser has closed various potlines in Washington and at the same time has brought in 90,000 new tons of capacity at Ravenswood, West Virginia. The same is true of the other producers of aluminum.

On the other hand, while technological developments have weakened the Northwest as a producer of aluminum, still other technological developments may make it possible to construct electric furnaces for the production of steel which could operate profitably on a 250 ton base sufficient to supply steel for the domestic Washington regional market.

To summarize, the Columbia Basin is going to continue to be an import area from the point of view of finished goods in large part, but should develop much small-scale industry of a supporting type to agriculture and to service the medium-size markets of the Basin. Agriculture will continue to be the chief prop for growth in the region. By 1965 or 1970, assuming full development, this industry should be valued at well over \$100 million annually. Agriculture will continue to be the chief export industry in the Basin. The use of power will, of course, continue to grow. The electro-chemical and electro-metallurgical industries that are already present will continue to develop because of existing investment, but at a slower pace than in the past. The presence of large sources of hydroelectric power will not in itself be sufficient to bring in new major producers of primary metals. At the same time, the effort should continue to be one of attracting and developing export industries in the area in order that the domestic market will grow and domestic industry flourish.

The area should ultimately emerge as a well-rounded, diversified regional economy.