PETROCHEMICAL DEVELOPMENT IN ALASKA

By Calvin Hanson

Alaska's royalty share of the Prudhoe gas reserve is 12.5 percent of 26 trillion cubic feet, or approximately 3.25 trillion cubic feet. Alaskans must now decide how this natural resource will be used. Historically, 95 percent of all petroleum products in the United States have been used as an energy source leaving only 5 percent for petrochemical production. Fairbanks, for example, has already expressed a desire for a natural gas distribution system. However, chemical development of natural gas may be commercially more attractive in Alaska. Some portion greater than the national average of 5 percent could be devoted to petrochemical production within the state.

Petrochemicals have dominated recent discussions of Alaska's industrial future. The term petrochemical is applicable to a broad range of petroleum production derived from either oil or natural gas. There are three broad categories of elements: aromatic chemicals, methane derivatives and aliphatic chemicals. The first group is considered commercially feasible only in very large refineries — 100,000 barrels per day facilities. The second group, methane derivatives, produces amonia, methanol, urea and other chemical fertilizers. The final group, aliphatic chemicals, produces molecular chains of the most basic building block in the petrochemical industry: ethylene. It is in the latter two categories that Alaska's chemical production will most likely occur.

The Collier Chemical Company has already established a petrochemical industry based on methane. Using methane gas received from the Cook Inlet oil field, their facility in Kenai has been producing ammonia and urea for export primarily to the states in the Pacific Northwest. Doubling their capacity in both products this year the company has had a very positive economic impact in the Kenai area. With the new facility in operation over 250 people will be directly employed. This project has stimulated a new cycle of growth in the Peninsula city.

Though not under production at the present time, the aliphatic elements are probably the most valuable. This group also occurs in natural gas in addition to methane. From this group ethylene and propylene can be produced. Both of these derivatives are basic elements in building synthetic products, plastics, synthetic fibers and pharmaceuticals.

Ethylene producing plants must be extremely large in order to be competitive on the world market. It is felt that a new facility must be able to produce nearly 1.2 billion pounds of ethylene per year. An estimated capital outlay of 160 million dollars would be required to build such a plant, perhaps more in Alaska. These capital expenses are not great, however, compared to recent investment plans on the Gulf Coast of Texas and Louisiana. This area produces approximately half of the worlds petrochemical supply. Unfortunately the impending lack of natural gas feedstocks in that area has forced the industry to turn to more costly naphtha, oil cracking plants. Amoco Chemical, Arco Chemical, Union Carbide and Exon are just a few of the firms investing over 400 million dollars each in new ethylene production units. The cost of converting to naphtha cracking facilities in Texas and Louisiana may neutralize any increased transportation costs associated with Alaskan production.

A new industry, or increased activity in an existing industry will result in employment increases and additional income. This will then generate a second round of new employment in other support sectors as the additional income is spent. This generation of additional income as the original dollars change hands from one individual or business to another is called the multiplier effect. A multiplier trys to measure the impact of these exchanges of the initial investment dollars. The multiplier for a given industry will vary from region to region. Generally the less self-efficient an area, the smaller the multiplier. This is because a greater percentage of the original dollar is spent outside the area than within. Alaska currently does not have a diversified economy large enough to support a petrochemical industry solely within the state. Therefore, any future petrochemical industry will have to depend on

outside suppliers for support, and outside markets for a majority of its income. This will result in a smaller multiplier for this industry in Alaska than in other areas of the United States which have more sophisticated economies.

Though the degree of impact as measured by the multiplier will not be as great as in other more industrialized areas, the relative magnitude of total dollar sales from such an industry should not be overlooked. The relative impact of a $160 million dollar facility would be much greater in Alaska than the same facility in the highly industrialized "lower 48".

Although petrochemical products are more or less irreplaceable, there are alternative energy sources. The advent of solar power coupled with Alaska's vast coal reserves are viable alternatives. The trend in the OPEC nations and in the North Sea oil fields is toward conservation of depleting petroleum resources for use in petrochemical production. With some certainty it is expected that Alaska will also be moving in this direction with its valuable petroelum resources.

ALASKA'S LABOR MARKET IN JULY

Employment and Unemployment: Alaska's civilian labor force has declined significantly with the completion of the Alaska pipeline. When compared to one year ago, total employment in the state has dropped approximately 13.6 percent.

Though activity within the state has not increased to levels similar to the pipeline era, total employment in July increased over the month by approximately 2.1 percent. Gains were primarily seasonal in nature and were limited to the construction, manufacturing, and transportation industries in the private sector. Public employment also increased primarily in the Federal government. Severe forest fires in interior Alaska required the hiring of many firefighters to control the blazes.

Mining: No significant changes occurred in the mining industry during the month of July. Increased activity in oil and mineral exploration is seen as the major factor behind the growth in employment when compared to a year ago.

Construction: With the exception of the Chena Lakes flood control project near Fairbanks, the majority of the larger construction projects in the state are taking place in the Anchorage area. Though no new major construction projects have started this summer, new homes continue to be built through out the state.

Manufacturing: The wood products industry continued to be hampered by strikes during July. Striking workers did not return to work until the latter half of the month.

In contrast to the wood products industry, employment in the fish processing industry was booming. Strong salmon runs during the month had many salmon canneries operating at peak capacity. In Southeastern Alaska it was feared that the local processors would not be able to handle the greater than anticipated catch. Fortunately, that situation was never realized and local canneries were able to process the entire catch.

Transportation, Communications & Utilities: Other than normal seasonal activity no significant changes occurred during the month of July.

Trade: Since the first of the year wholesale trade employment has remained essentially static. Expectations of a natural gas pipeline from Prudhoe Bay, and increased population may have offset any negative factors brought about by the completion of the Trans-Alaska oil pipeline.

The retail trade sector also has not followed previous trends this summer. This sector normally expands during the summer months and then tapers off in August and September. This is the first time this decade that employment in the retail trade sector has declined in July.

Finance, Insurance & Real Estate: This industry did not change noticeably from June to July. Due to the stable nature of the banking sector, which makes up a large percentage of this industry, drastic changes in employment normally do not occur.

Services & Miscellaneous: Changes in employment levels from June to July were quite mixed. Hotels and other lodging facilities remained relatively unchanged when compared to the previous month. This is normally a time when the hotel industry is expanding to accommodate the summer tourist season. A slight drop off in the number of tourists coming to the state, perhaps related to the shutdown of the Alaskan Marine Highway System due to a labor