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Official Business

# Alaska State Legislature

## Senate

### Committee on State Affairs

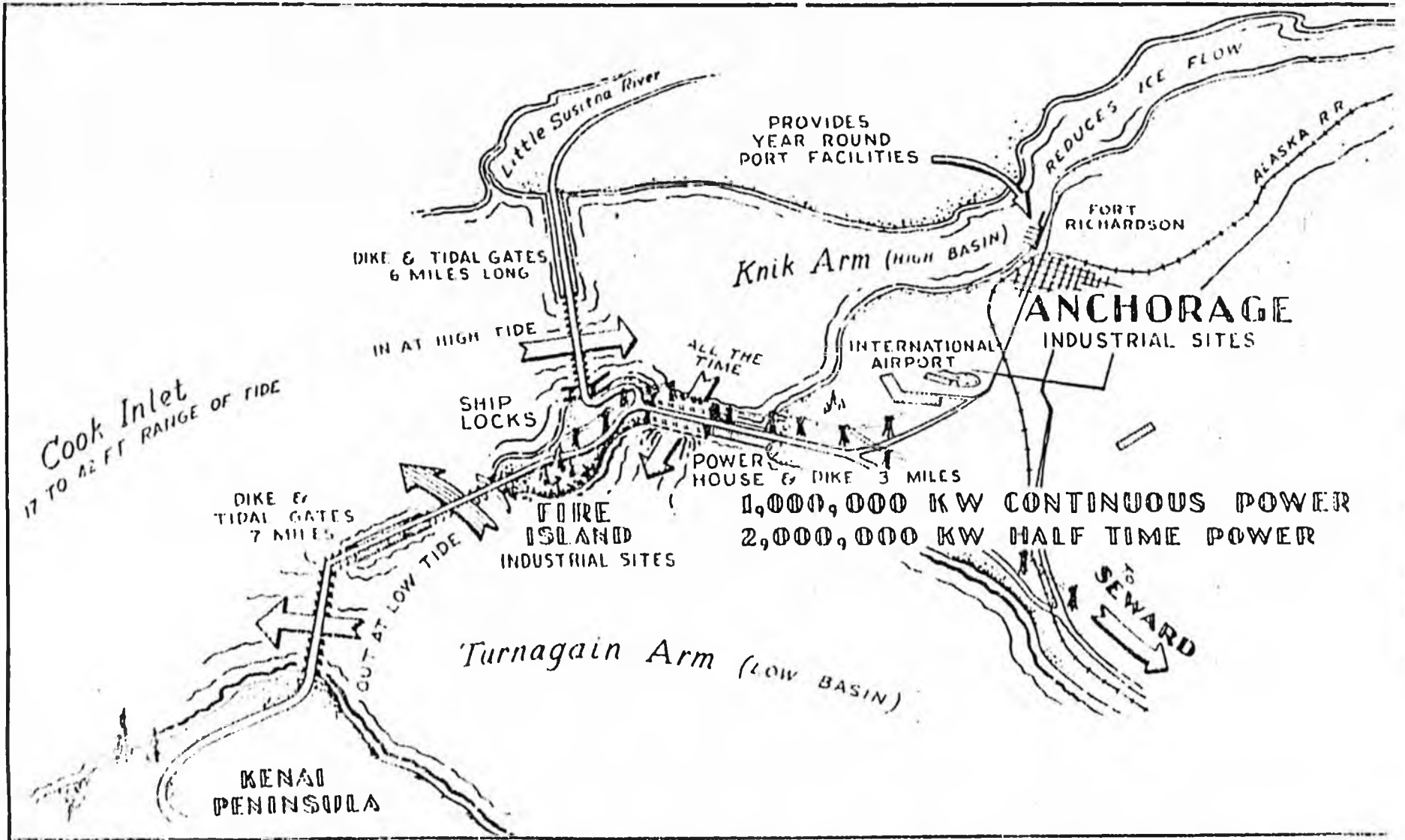
Pouch V  
State Capitol  
Juneau, Alaska 99811

#### M E M O R A N D U M

TO: Senator Bill Ray, Chair, Committee on Transportation  
FROM: Sen. Fischer  
RE: Cook Inlet Tidal Power and Transportation Links

Attached is an Anchorage News clipping of August 26, 1975, that gives us all the answers to providing Turnagain Arm and Knik Arm crossings from Anchorage, harnessing Cook Inlet tides, etc. The proposal looks like it would solve many of our problems: power, highway access, port, etc.

*Vic*



A plan to build dikes across Knik and Turnagain Arms to harness the tidal power of Cook Inlet was first

proposed more than 20 years ago by a Seattle consulting engineer, Roy Johnson. The proposal is gaining

new attention as natural gas and oil prices climb; the nation searches for alternative sources of energy.

# Electricity from steam, winds, tides

By ROSEMARY SHINOHARA  
Daily News Staff Writer

By 1980, Alaska may be getting about 90 per cent of its electrical energy from oil and natural gas, says R. J. Cross, chief of the project development division for the Alaska Power Administration.

"This is a matter of no small concern," Cross says. "There are good reasons to try to reverse the trend."

ROY W. JOHNSON, a Seattle consulting engineer, and Dr. William Ogle, an energy consultant, agree. But each has different ideas on how Alaska's power needs can be met, ranging from a proposal to harness the tides in Cook Inlet to prospects for supplying power for the village of Elm with a hot springs about seven miles away.

All three men made presentations on alternative energy sources before delegates to the Construction Specifications Institute regional convention, which ended in Anchorage Sunday.

## HYDROPOWER

Cross says there's a good chance that Alaska's major power systems may be placed entirely on coal and a hydro energy basis by the middle or late 1980s.

THE CONVERSION to hydro and coal power is "A very real option," but it would require huge investments, Cross says.

"Building Devil Canyon and the other units of the Upper Susitna River Project would be a major step," he believes. The

Devil Canyon project alone would provide roughly one-fourth of the total estimated Alaska energy requirements in the year 2000. The U.S. Corps of Engineers is now completing field studies, with plans to have the first power on line in 1985 and annual firm energy of more than six billion kilowatt hours when the project is totally developed.

The Alaska Power Administration, part of the Interior Department, primarily plans for water and power development and operates federal hydroelectric projects in the state, but has also made some studies of coal, Cross says.

PLANS to export coal from the Cook Inlet area to the South 48 have been under active consideration for several years, he notes. "Huge increases in coal prices over the past two years have certainly enhanced chances for such development."

## GEOTHERMAL ENERGY

Dr. William Ogle, a physicist, has studied both geothermal energy and wind power, and says Alaska apparently has very large geothermal resources, but little is known about them.

There are generally three types of geothermal energy, dry steam, hot water, and hot, dry rock, Ogle says. For dry steam, the steam can be piped out of the earth and run through a turbine to create cheap electricity. With a hot water resource, steam and

water will come to the surface if a hole is drilled down to the hot water. The experts are still studying how to produce energy from hot rock, where no water exists.

Ralph Stefano, an Anchorage engineer, studied the feasibility of heating Nome with a piping system from the Pilgrim Hot Springs some 70 miles away. The piping system is estimated to cost \$35 million. But another possibility might be to drill directly under Nome in search of a geothermal resource similar to the system used to furnish utilities for large apartment complexes in Paris, Ogle says.

The University of Alaska is looking at another potential geothermal project — a power system for the village of Elm east of Nome, with a hot spring

about seven miles away.

## TIDAL POWER

Roy Johnson, a consulting engineer, first presented his proposal to provide power for the Cook Inlet area in 1954 and with electricity needs rising along with costs, his plan to harness the tidal energy in Cook Inlet may be reasonable and competitive in 1975, Johnson believes.

Johnson's plan calls for damming Knik and Turnagain arms, enabling power to be produced because of the difference in water surface elevation on either side of the dike.

THE PROJECT would include vehicle access from Anchorage across Turnagain Arm to the Kenai Peninsula and across Knik Arm to the Susitna River delta. Other

possible benefits would be the potential for establishment of a complex of electro-metallurgical and electro-chemical industries to process minerals with the tidal power, Johnson says.

An extensive program of investigation would have to be pursued to authoritatively determine the feasibility of the idea, he says. He suggested the cost of tidal barriers and gates might be \$60 million, and the cost of a power plant might be \$500 million for a 1,000 megawatt plant.

Even with those figures, the cost to benefit ratio for the project would be high, Johnson says. Direct highway routes on the barriers, improvements to shipping, and the non-polluting nature of the project are among its benefits.



## the draft comprehensive plan

Quote; Page 10

"Citizens throughout the Borough have repeatedly voiced a concern over inadequacies in the design of many residential subdivisions . . . The mixing of single family homes with apartment units, however, did not receive much support."

Page 21, Policy # 2

"The housing industry should be encouraged to provide greater . . ."

