**Alaska Natives Exploring ‘Middle Earth’ For Energy Solutions**

**By ANVCA Staff**

The Fairbanks Northstar Borough is the third largest population base in the State of Alaska, home to approximately 99,000 people. In a region the size of France, it is the hub of economic activity for the 34 surrounding villages, village corporations, and regional corporations. Communities in this area are largely without a clean and affordable source of heat, as many individuals experience energy bills that are greater than their mortgage payments during cold winter months. The primary energy source in the area is coal, wood, and heating oil - cheap and easy to burn with little existing natural gas infrastructure. While traditional fossil fuel energy sources provide readily accessible sources of energy, the negative impact on air quality and associated health-related ailments is well documented.

An issue that villages and their corporations are trying to solve is the availability of clean-burning energy resources at an affordable price – specifically, natural gas. An innovative “virtual pipeline” approach has been developed by the Knik Tribe, Knikatnu, Inc. and Siemens Government Technologies to provide Liquefied Natural Gas (LNG) to Fairbanks under an agreement with the Interior Gas Utility (IGU). As outlined in a proposal submitted to the IGU in August, the Knik team would build, own, operate and maintain a new liquefaction plant in Houston – situated a mile off the Parks Highway with access to the Alaska Railroad – while aligning the supply and service contracts necessary to support operation and safely transport LNG in ISO containers via the Alaska Railroad to IGU’s storage facility in Fairbanks. As demand is projected to increase over time with greater availability of LNG at an affordable price, further distribution routes are possible throughout the state.

The unique thing about this endeavor is that instead of investing in a large scale LNG plant which would be much too large for current demand models, taking a modular and scalable approach to the operation allows the team to grow as needed along with demand thanks to Siemens’ modular micro-scale liquefaction technology known as LNGo. Each modular LNGo unit can produce 30,000 gallons of LNG per day. As the Fairbanks area converts to the cleaner-burning LNG over time, production capacity can be increased through the addition of more LNGo units. The Knik team approach is to offer the IGU a guaranteed firm supply of LNG, with capital costs and associated financing and operating costs recovered by way of a monthly fixed fee and dollar per delivered thousand cubic foot basis.

The fundamental value proposition offered by the Knik / Siemens team is to combine the large program management experience and innovative clean energy technology of Siemens with the leadership of Knikatnu Inc. and the Knik Tribe to align the interests of all suppliers and stakeholders, ensuring the most economical clean energy solution for the residents of Fairbanks Northstar Borough in the shortest amount of time.

Hundreds of miles away on the North Slope, new drilling technology also holds opportunity for developing local energy solutions in the Interior – one that Conocophillips Alaska and Doyon, Ltd. are partnering to develop. Over a year ago, Conocophillips signed a contract with Doyon Drilling, Inc. to produce an extended reach drilling (ERD) rig. Not only will this technology increase the developable area over 2.5 times its original size, the ERD technology will decrease the footprint of development in the area because of the minimization of environmental impact.

Scheduled to begin drilling in spring 2020 in the North Slope and designed in collaboration with Doyon Drilling, Inc. and National Oilwell Varco, the rig will be able to drill over 33,000 feet into the ground, almost 33% more than existing drilling rigs. ERD technology is versatile, as it can be used in multiple North Slope locations. Based off expected oil reserves, Conocophillips Alaska expects to keep this ERD rig in operation well into 2030 and beyond, yielding a significant return on investment. Rig design is currently 100% complete, with fabrication 92% complete and Rig-up at Nisku, 68% complete.

