

Unconventional Gas Production From Hydrates

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Abstract

The recovery of hydrated gas is not only a feasible source of energy, but has great potential for becoming a major source of income in the gas industry. The analysis of this report has determined that the exploration of Russian hydrate reserves, on the Kamchatkan peninsula specifically, and delivery to the Japanese market show earnings potential in the multi-billion dollar range. The greatest part of the production cost is going to be liquefying the gas for overseas transport. The next largest cost is piping the gas from the well-head to the liquefaction facility. It is recommended to build the liquefaction and regasification plants to handle rates to keep three LNG transport ships moving, or approximately 450,000 kg/hour methane. The risk curve and regret analysis agree in this respect. Production costs at the LNG and regasification plant will run approximately \$2.00 and \$0.13 per MM Btu respectively. To keep the necessary rates, 22 wells over a 15 year period will be drilled in Kamchatka; this comes to \$0.06 per MM Btu. The costs associated with piping gas from the well-head to the plant and then shipping to Japan are also relatively minor, only \$0.64 and \$0.53 per MM Btu respectively. Bringing the total production cost to \$3.36 per MM Btu. Expected gas production rates average 135 million MM Btu per year, and at an average price of \$7 per MM Btu, all investment money will be returned by year five. A yearly ROI of 14% is expected, with a final cash position of \$6 billion at the end of 15 years. Assuming an inflation rate of 4%, the net present worth of this project is \$3.5 billion dollars after this time period.