

# COAL MINE METHANE PROJECT OPPORTUNITY

## Nalaikh Mine Power Generation and Heating Project

### Tsagaan Shonkor Holding Company

#### Nalaikh District, Mongolia

### OVERVIEW OF COAL MINE METHANE PROJECT:

The Nalaikh coal deposit is located approximately 40 km to the south-east of Ulaanbaatar, the capital city of Mongolia. The Nalaikh colliery was established in 1922 and stopped its operation in 1992-1994 with a mining history of 70 years. There are still many small scale, artisanal mines operating at shallow depth to supply rather high quality coal to Ulaanbaatar and Nalaikh customers. Also, some private companies possess mining licenses in the coal deposit area and when mining resumes in 2014, the Nalaikh mine will be Mongolia's second underground coal mine. Tsagaan Shonkor Holding Company holds mining licenses in the western part of Nalaikh deposit area. The license area has five mineable coal seams and coal reserves are estimated to approximately 24 million tonnes. Designed production capacity of the mine will be 600,000 tonnes per year for a service period of 17 years.

No CMM is currently being used at the Nalaikh mine, nor does the mine have a drainage system in place. The first component of the project is to drill test boreholes in the projected mining area (western Nalaikh) to determine gas potential and make a reserve estimate. Second, assistance is sought for on site training and studies and clarification of recovery possibilities of remaining methane gas from the abandoned area of the Nalaikh coal mine. Following a reserve estimate and trial methane production using test boreholes, the project would include installation of a drainage system and utilization of methane for electricity generation to support mine power supply. A 3.6 MW power plant is anticipated. Geologic and mining conditions at Nalaikh could allow both surface boreholes and/or in-mine boreholes. If the reserve estimate and study of recovery possibilities determines sufficient resources, methane gases may also be used for the needs of a district heating plant, which is located nearby and uses coal. In this case, coal boiler rehabilitation and gas supply pipeline are required. The test boreholes, reserve estimate, and training activities have an estimated budget of US\$800,000. A study will be required to determine the cost of the potential power and heat projects; however, a preliminary estimate determined capital costs of the power project to be approximately US\$5 million. The project(s) are expected to last through the mine's service period of 17 years.

### ESTIMATED ANNUAL EMISSION REDUCTIONS: 96,390 MTCO<sub>2</sub>E

### PROJECT DETAILS

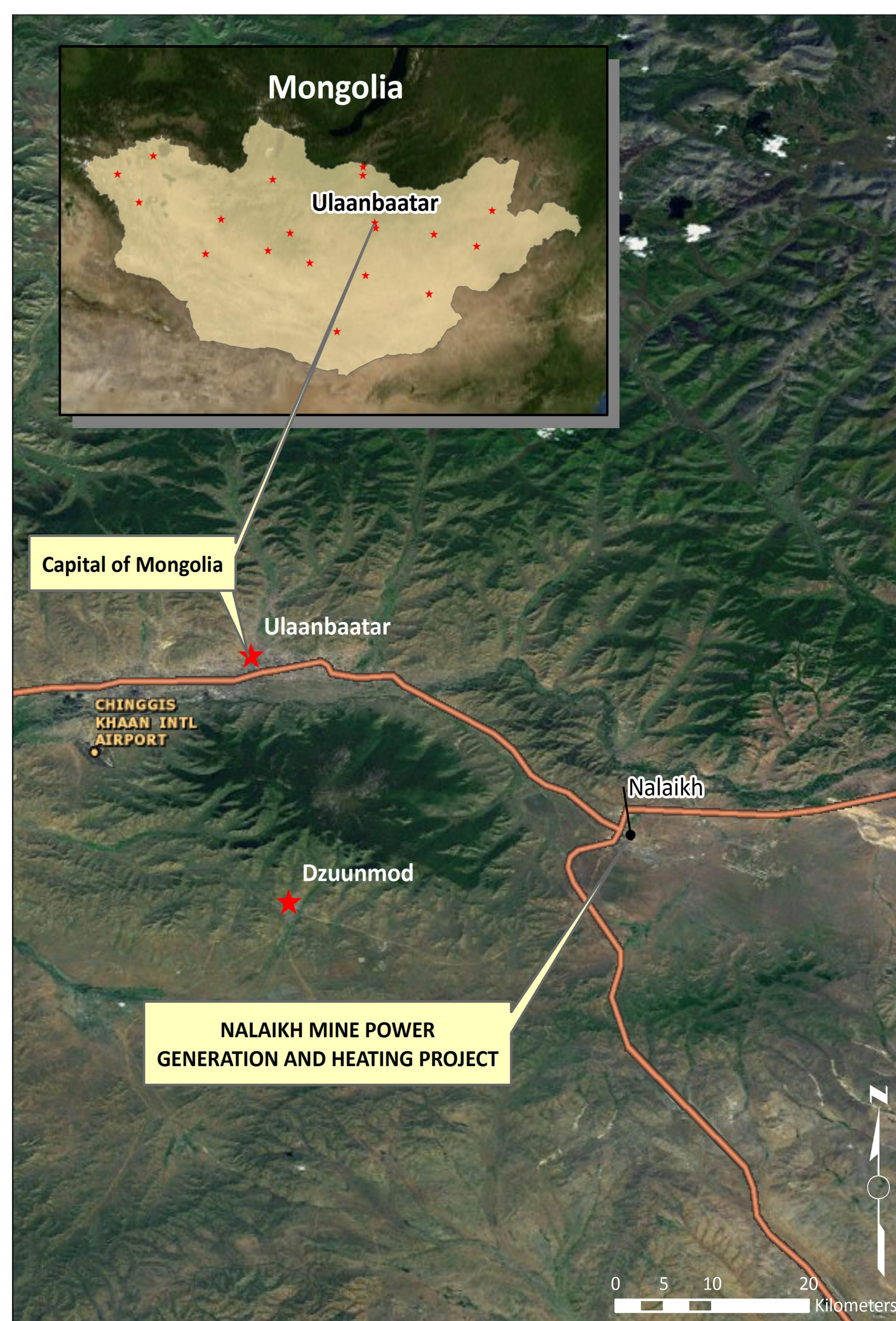
- Name of Project: Nalaikh Mine Power Generation and Heating Project
- Name of Mine: Nalaikh Mine
- Type of Ownership: Private
- Type of Assessments Performed: Pre-feasibility study:
  - When performed: 2010
  - By whom: Mongolia Nature and Environment Consortium (MNEC)

### MINE INFORMATION

- Mine owner: Tsagaan Shonkor Holding Company
- Status of mine: Active
- Type of mine: Underground
- Mining Method: Longwall

### PROJECT FINANCES

- Projected capital costs for first phase (resource assessment and test boreholes): US\$800,000
- Projected capital costs for power project: US\$5 million





## MARKET ANALYSIS / DEMAND ANALYSIS

The primary end use for the methane would be for electricity generation to support the mine's power supply. A 3.6 MW power plant is anticipated. If enough methane is available for a second stage of the project, coal mine methane could also be supplied to the district heating plant, which is located nearby and currently uses coal. For this second stage of the project, the boiler would need to be converted from coal to gas and construction of a gas supply pipeline of 3 to 4 kilometers would be required.

Costs for implementation of the power project are estimated to be US\$5 million. Costs for the second stage district heating plant have not yet been estimated. The project would require capital investment.

## TYPE(S) OF ASSISTANCE SOUGHT

- Financial Assistance: For drilling of boreholes in projected mine area (western Nalaikh)
- Technical Assistance: Including resource assessment
- Overcoming legal or regulatory issues: Ownership of gas depends on obtaining a license according to petroleum law, separate from coal license issued according to minerals law

## PROPOSED TECHNOLOGIES



Proposed technologies for the Nalaikh project include a methane distribution system that will carry high, medium, and low quality gas to internal combustion engines. Given the preliminary resource assessment, it is estimated that two 1.8 MW engines will be deployed for a 3.6 MW power project.

## FOR MORE INFORMATION, CONTACT:

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