

COAL MINE METHANE SUCCESS STORY

Lenina Mine Pilot CMM Power Plant

JSC ArcelorMittal Temirtau Coal Division

Karaganda Coal Basin, Republic of Kazakhstan

OVERVIEW OF COAL MINE METHANE PROJECT:

The project consists of a single containerized high efficiency, spark ignition, lean burn gas generator set, which is fueled from CMM drained from the underground workings of Lenina Mine. The project was commissioned in November 2011, and has produced more than 8.7 million kilowatt hours (kWh) of electricity since the commencement of operation.

Continuous improvement of the methane drainage system and the operation of the generating plant means that the project now operates at full load of 1,415 kWe and achieves an operational availability over 95%. The current performance is sufficient to reduce the electricity import of Lenina Mine by 20%.

ACTUAL ANNUAL EMISSION REDUCTIONS: 32.8 MTCO₂E

PROJECT DETAILS

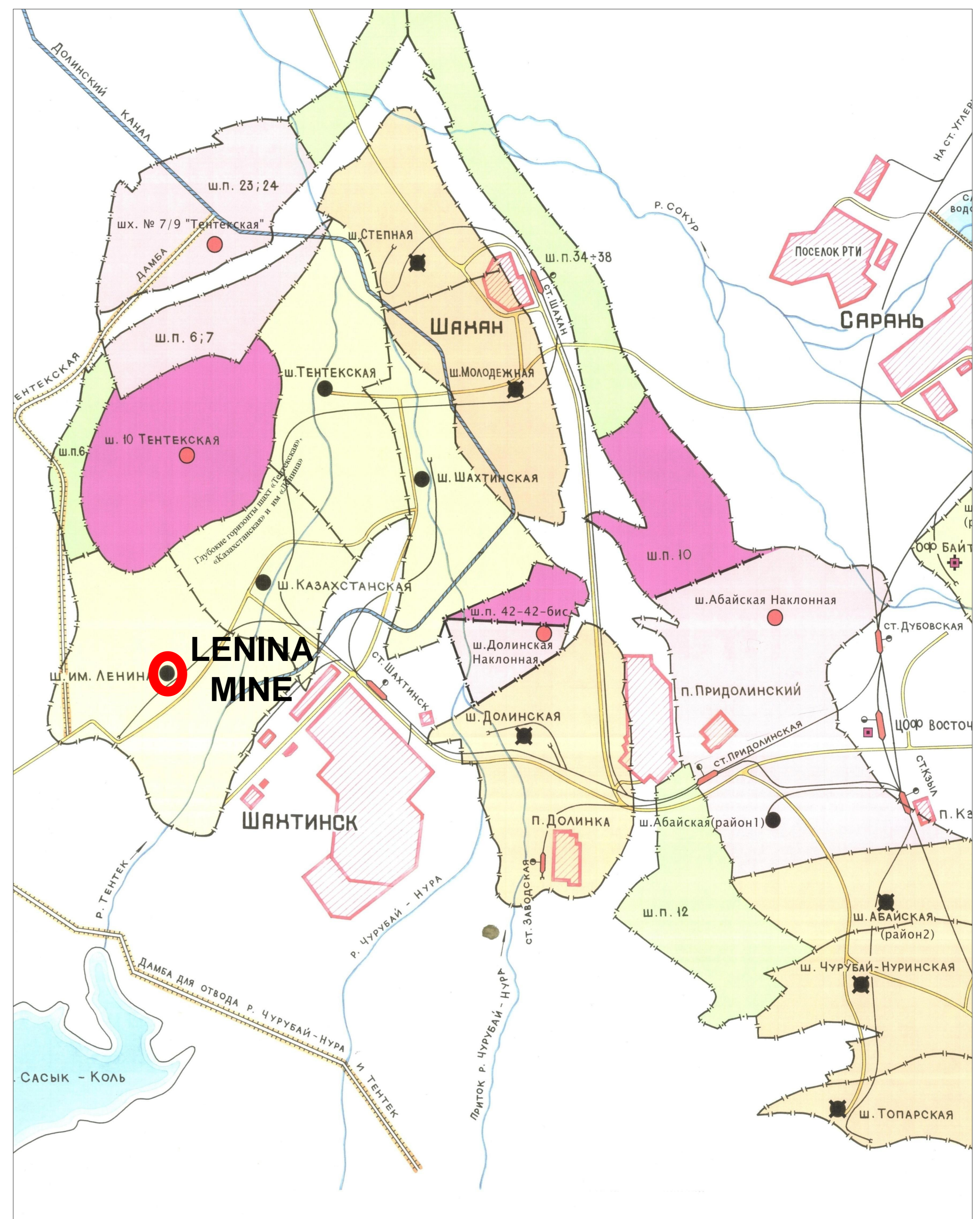
- Name of Project: Lenina Mine Power Plant
- Name of Mine: Lenina Mine
- Type of Ownership: Private
- Project stakeholder(s) involved in project's design, development, and implementation: ArcelorMittal, INTMA, HEL-East, Ltd.

MINE INFORMATION

- Mine owner: JSC ArcelorMittal Temirtau Coal Division
- Parent company: ArcelorMittal
- Status and type of mine: Active underground
- Mining Method: Mechanized Longwall

PROJECT FINANCES

- Actual capital costs: US\$ 1.5M



INSTALLED TECHNOLOGIES



Containerized Gas Generator Set at Lenina Mine



Methane Extraction Plant and Gas Cooler

HIGHLIGHTS / LESSONS LEARNED

This is the first CMM power generation plant to be installed in the Republic of Kazakhstan. Its purpose is to demonstrate that CMM can be safely, efficiently, and economically converted to electricity, thus paving the way for the widespread deployment of this technology across the Kazakh mining industry. This project also enables local Kazakh craftsmen to gain hands on experience in the operation and maintenance of high efficiency power generation equipment.

The low ambient temperatures during the Kazakh winter have presented various design and operational challenges, predominantly the management of condensate drainage and deployment of trace heating of gas drainage pipework.

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