

# COAL MINE METHANE SUCCESS STORY

## Zhongliangshan CMM Utilization Project

### Zhongliangshan Coal Electricity Gas Co. Ltd

#### Zhongliangshan, Chongqing, China

### OVERVIEW OF COAL MINE METHANE PROJECT:

Zhongliangshan Coal Electricity Gas Co. Ltd. owns two operational mines and produces half a million tonnes of coal annually. In the 1980s, Zhongliangshan Coal Mine began to utilize CMM within the mining areas as town gas. However, large scale commercial utilization of CMM didn't begin until May 2006, thanks partially to CDM. Both mines drain gas with methane concentration around 40% and send it to a central storage tank, where CMM is mixed with natural gas (if necessary) to maintain a methane concentration of 50%. CMM is then delivered to residential, industrial, and commercial users through a pipeline network. In 2012, Zhongliangshan mine drained 50 million m<sup>3</sup> of CMM and supplied all the gas to more than 40,000 households and numerous industrial and commercial users. It generated close to 30 million RMB (\$4.84 million) in revenue.

Zhongliangshan CMM Utilization Project represents a successful CMM-to-gas business model by introducing CMM to the natural gas market in China. Unlike the CMM-to-power generation business model where the power grid does not benefit from CMM utilization activity, participants of the CMM-to-gas business (the coal mine, gas distributor, and end users) all benefit, which encourages a sustainable operation.

**ACTUAL ANNUAL EMISSION REDUCTIONS: 260,000 MTCO<sub>2</sub>E**

### PROJECT DETAILS

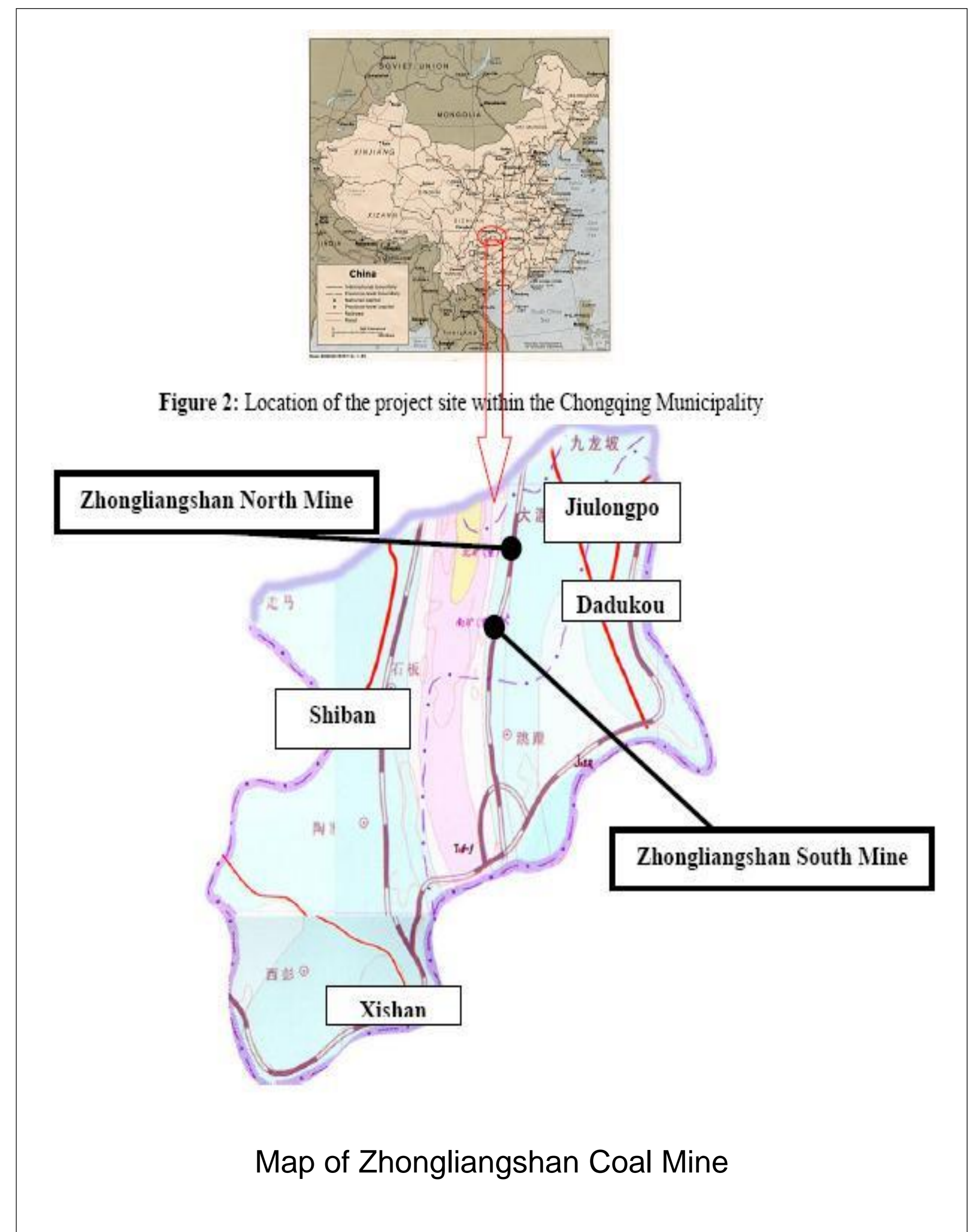
- Name of Project: Zhongliangshan CMM Utilization Project
- Name of Mine: Zhongliangshan Coal Mine
- Type of Ownership: Public
- Project stakeholder(s): Chongqing Yuneng Gas Co. Ltd. as CMM off-taker and gas retailer

### MINE INFORMATION

- Mine owner: Zhongliangshan Coal Electricity Gas Co. Ltd
- Parent company: Chongqing Energy Investment Group
- Status and type of mine: Active / Underground
- Mining Method: Longwall

### PROJECT FINANCES

- Actual capital costs: US\$ 8,460,478
- Actual operation and maintenance (O&M) costs for fully implemented project: US\$ 1,543,724
- Projected Internal Rate of Return (IRR): 22%





## INSTALLED TECHNOLOGIES



Pipelines Transporting CMM from Storage Tank to End Users



CMM Meter for Household Users

## HIGHLIGHTS / LESSONS LEARNED

- ◆CMM revenue could be a significant supplement to a coal mine's revenue source. As Zhongliangshan mine's slogan points out: "Coal mining preserves our rice bowls, pumping gas makes us well-off".
- ◆Gas market access for CMM is the key to sustain good methane drainage practices and financial returns. Compared to access to the power grid, the gas market is much more accessible and welcoming.
- ◆A business model is essential to ensure success. The Zhongliangshan case study shows that CMM has become a commodity, which creates value for the gas distributor and gas users. In return, Zhongliangshan Mine receives economical incentives to maintain stable and high quality gas drainage.

### FOR MORE INFORMATION, CONTACT:

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