

The VAM Oxidation and Power Generation Technology

The technology has applied successfully as national “863 Program”

The three parties, Zibo Diesel Engine Parent Company, Shandong University of Technology, Beijing Tianqing Power International CDM Consulting Co., Ltd. cooperated together to devoted to the research and application on VAM oxidation and power generation, and implemented innovative research on oxidation and power generation equipments. The technical barrier on low concentration VAM oxidation has been overcome successfully, which has achieved accreditation by The Ministry of Science and Technology of PRC, and applied successfully as national “863 Program” project, thus acquired specific supporting fund from the government.

Beijing Tianqing Power International CDM Consulting Co., Ltd acted as the sole agency for VAM equipment sales.

The VAM technology research achievement has realized significant breakthrough in the “Greenhouse gas emission reduction technology” field, especially for methane emission reduction. Consequently, it will contribute greatly for sustainable development in coal mine industry of China, and mitigate the global climate warm change.

The project is complying with the government developing target as “achieve the breakthrough in energy exploitation, saving energy and clean energy field, accelerate the optimization process in energy structure”, and the policy as acting positively in saving energy field. Furthermore, it will also establish new industry standard for coal mine methane in the industry.

The Experiment Result for 40000m³/h Unit Equipment

The lowest operational gas concentration (under stable operation)	≤0.3%
Methane oxidation rate	≥97%
The temperature difference between the input and output exit	≤40°C
The continuous working period	≥3 months
The accident occurrence	≤2 times
The gas concentration regulation precision	0.1%
The capacity of overheated steam production	
The pressure of overheated steam	≥2.5MPa
The temperature of the steam	≥400°C
For single device, the overheated steam pressure	2.5MPa
The amount of 400 °C steam	5000kg/h

The Project Implementing Step :

1. Carry out research for VAM resources and identify the project.

2. Design the comprehensive utilization scheme for VAM & (CMM) according to the coal mine characters

3. Demonstrate the utilization scheme, design and implement project financing scheme.

4. Finish the FSR, EIR etc, and acquire all the relevant approvals from the government.

5. Start the CDM application process simultaneously.

6. Start the project construction.

7. Carry out the equipment installation and realize project commissioning

8. Finish the project construction; acquire the project revenue (CDM revenue and power generation revenue).



→Feasibility Analysis on VAM

This project adopts regenerative thermal oxidization technology to oxidize low methane concentration VAM. Via this method, methane emission can be reduced and CERs can be obtained. Meanwhile, the generated steam can be used for power generation. Through securing CDM revenue and power generation profit, the economic feasibility of this project will be promoted.

This project is in compliance with relevant national policies, specific funds can be obtained to support and accelerate the energy-saving and emission reduction target.

- ✚ VAM projects have been approved by UNFCCC as qualified CDM projects. By consuming and reducing methane emission, carbon credits and CDM revenue can be obtained.
- ✚ Steam generated during methane oxidation can be used for power generation, which can be directly used as self-consumption power or be transmitted to the grid.
- ✚ Base on various elements like methane concentration and gas flow the CERs volume and power generation revenue may be different. If the methane concentration is below 0.4%, the low concentration CMM with VAM could be mixed to reach an ideal emission reduction target.

Annual Project Revenue at Different VAM Concentration (Unit Processing Capacity: 40000m³/h)

Concentration	0.40%	0.60%	0.80%	1.00%
Annual Emission Reduction (tCO ₂)	14000	20000	27000	35000
CDM Revenue (ten thousand RMB)	112	160	216	280
Power Generation Revenue (ten thousand RMB)	30	40	55	70
Project IRR (%)	10%	23%	35%	40%
Investment Recovery Period (year)	8.1	4.5	3.0	2.2



Beijing Tianqing Power International CDM Consulting Co., Ltd is an excellent specialized consulting enterprise in China providing professional financing and consulting services regarding clean energy and climate change. Ever since the foundation, Tianqing Power has developed over 200 projects among which 190 projects have obtained LoAs issued by NDRC, 70 projects have been successfully registered at EB while other 21 projects have been submitted to EB and waiting to be registered. Our service scope covers:

- ✚ Develop and apply for CDM projects.
- ✚ Provide financing service for CDM projects.
- ✚ Carry out market investigation, relevant energy policies research.

Website : <http://www.tqcdmchina.com>

Our Partners

