



VAM Processing - Global Mile Stones and Status by 2010

Methane to Markets Coal Subcommittee
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2010 Global VAM Status & Mile Stones

Lack of progress in international Climate Talks
means major uncertainty of post 2012 carbon credits
does not support feasibility of VAM projects.

2010 Global VAM Status & Mile Stones

Lack of progress in international Climate Talks means major uncertainty of post 2012 carbon credits does not support feasibility of VAM projects.

1. Globally first VAM based CER's formally approved by the UNFCCC.
2. Major VAM project under installation in China.
3. VAM Power Plant in Australia has generated over 625,000 carbon credits and over 100,000 MWh of electricity.

Officially announced VAM installations Worldwide

- MEGTEC and others by 2010

- Demos (MEGTEC)



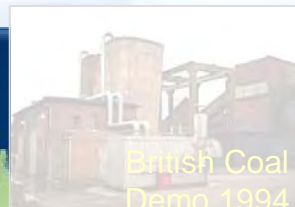
2002
BHP



Officially announced VAM installations Worldwide

- MEGTEC and others by 2010

- Demos (MEGTEC)
- **Commercial**



Officially announced VAM installations Worldwide

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MEGTEC VAM in China

ZhengZhou Coal Mining Group, Henan Province



System capacity: 62 500 Nm³/h

VAM concentration: 0.3% to 0.7 %

Actual often <0.3%



The complete installation includes VAM abatement and energy recovery in the form of hot water for local use.

The globally first project to be awarded VAM-based CER's
(Kyoto related Carbon Credits).

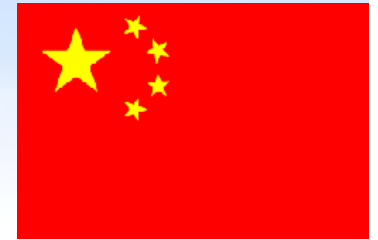
MAJOR VAM PROJECT IN CHINA

MEGTEC SUPPLIES TO J/V LEAD BY INT'L POWER COMPANY AES



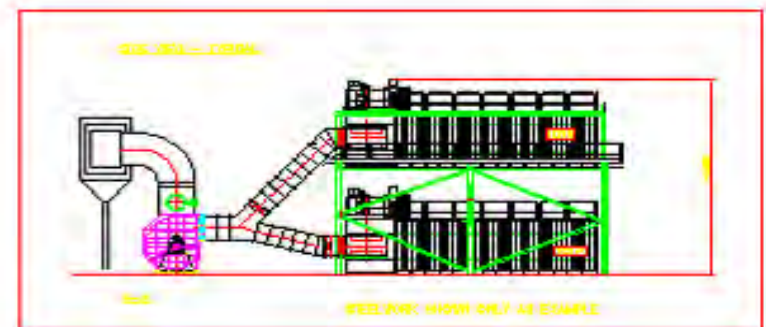
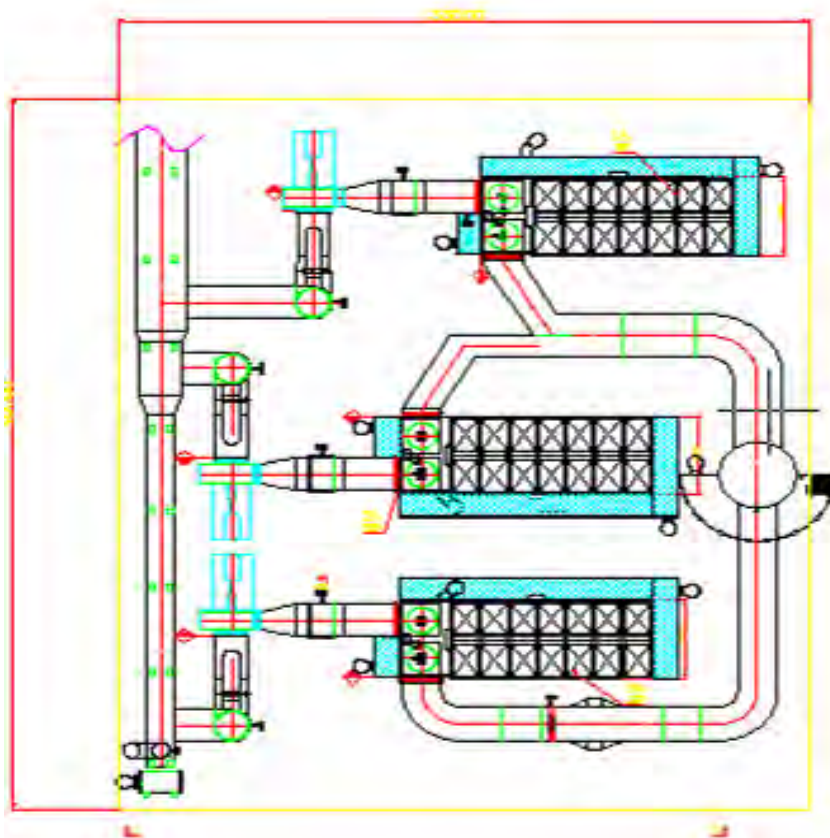
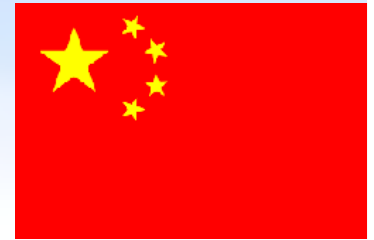
- ❖ DaTong coal mine of SongZao Mining Group, ChongQing Province
- ❖ Processing capacity is 375,000 Nm³/h of ventilation air
- ❖ Will generate hot water for local use
- ❖ The 6 Vocsidizer units are being produced in China
- ❖ Installation in 2010
- ❖ Start up in 2011

VOCSIDIZERS PRODUCED IN CHINA



VAM PROCESSING

at the Da Tong mine of the SongZao Mining Group



375,000 Nm³/h
of ventilation air



MEGTEC VAM Power Plant WestVAMP

at BHP Billiton in Australia

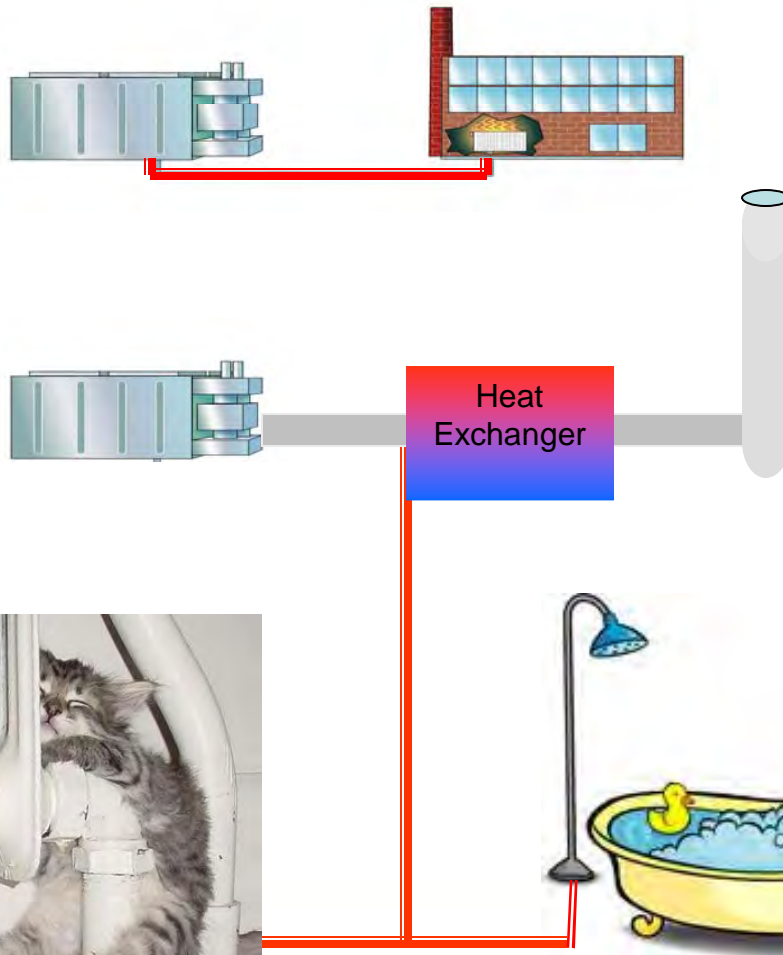


By 2010 over 625,000 carbon credits and
100,000 MWh of electricity generated.



Hot water from VAM (thermal energy)

GUIDELINES



	0.3%	0.6%	0.9%
Heat straight from bed. Water at 70 - 150°C	3 MW	11 MW	18 MW
- - - For each 250 000 Nm ³ /h of ventilation air - - -			
Secondary heat-exchanger. Water at 70oC	1 MW	8 MW	15 MW
Secondary heat-exchanger. Water at 150oC	-	2 MW	10 MW



Electricity from VAM Power Plant

GUIDELINES

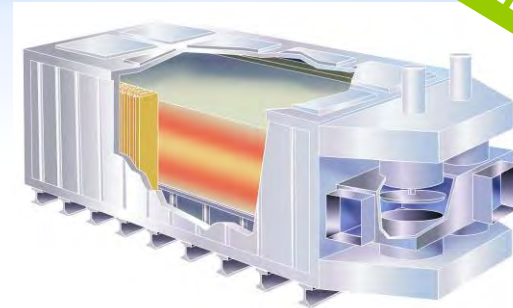


	0.3%	0.6%	0.9%
Heat straight from bed.	3 MW _{th}	11 MW _{th}	18 MW _{th}
Water at 70 - 150°C	=	=	=
	½ - 1 MW _e	3 - 4 MW _e	5 - 6 MW _e
- - - For each 250 000 Nm ³ /h of ventilation air - - -			

For large size plants, conversion from thermal to electrical energy can be expected to be around 30%, and lower for smaller plants.

Calculations of CERs

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Examples:

250 000 Nm³/h @ 0.9 % VAM comes to 240 000 tonnes of CO₂e

125 000 Nm³/h @ 0,9 % VAM comes to 120 000 t CO₂e

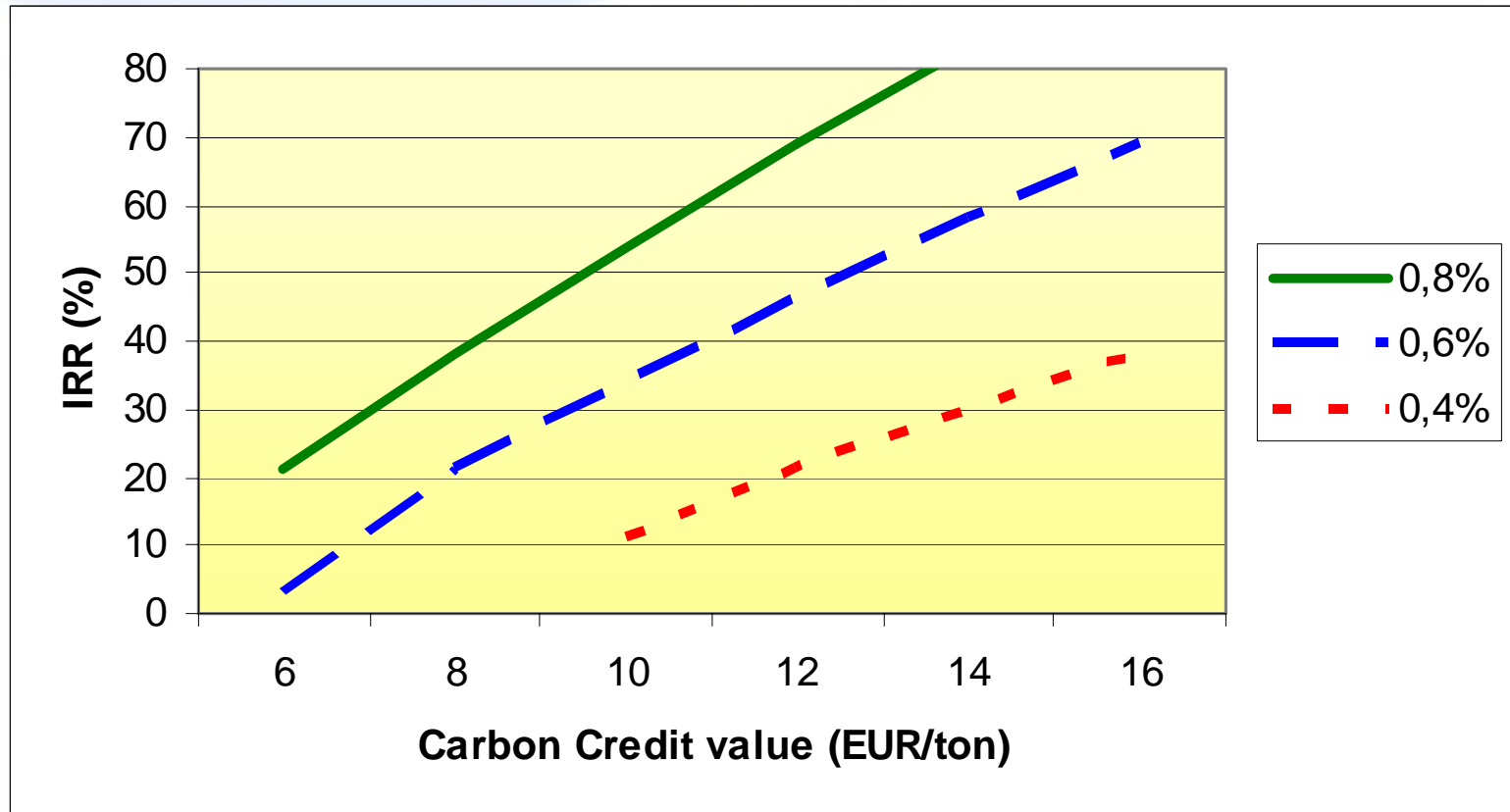
125 000 Nm³/h @ 0,3 % VAM comes to 40 000 t CO₂e

VAM conc'n Nm ³ /h vent air	0.3 %	0.6 %	0.9 %
125 000	40	80	120
250 000	80	160	240
500 000	160	320	480
1 000 000	320	640	960

Annual emission reductions in thousand tons of CO₂e

VAM project economics indication

GUIDELINES



CONCLUSIONS for short pay back:

- VAM concentrations should be min ½ percent
- Carbon Credits should be minimum EUR 10/t

2010 VAM PROJECT FEASIBILITY PROBLEM

Failure in international climate talks create uncertainty about post 2012 credits
Present values of carbon credits do not support VAM project economics

Once the climate talks can give some certainty of Carbon Credits post 2012, the emerging VAM processing market can be expected to boom.

Waiting for that to happen;

- Mine operators and Governments should promote 1st demo installations to familiarize with VAM processing.
- Progressive investors should dare to take positions in larger installations.
- Equipment suppliers new to the VAM application should gain experience in time for the emerging VAM market to take off.

VAM PROCESSING STATUS 2010

