The World's 1st large scale VAM Power Plant now under construction in Australia
Globally leading supplier of emission control equipment for low concentrations of hydrocarbons to air.

In house competence and experience of boilers and boiler design.
Most suitable technology: The flameless VOCSIDIZER

- **No Catalyst:** Efficiently oxidizing at full normal temperature for methane.
- **Flameless:** Oxidation completely in-bed.
- **No NOx:** No flame. Homogeneous temp distribution without peaks.
Another Typical MEGTEC Oxidizer Application

Over 700 VOCSIDIZERs in many industrial applications, now adding ..

Coal Mine Ventilation Air Methane
PROVEN TECHNOLOGY
VAM ABATEMENT

1st DEMO INSTALLATION AT A COAL MINE
- abating vent air methane in 1994

TRIAL UNIT AT BRITISH COAL 1994

Demonstration of abatement.

8 000 m³/h of ventilation air with 0.3 – 0.6 % methane.
RECOVERING ENERGY
FROM VOSIDIZER BED
2nd DEMO INSTALLATION AT A COAL MINE
- small scale generation of energy

TRIAL UNIT AT APPIN COLLIERY, BHP AUSTRALIA 2001 - 2002

Demonstration of small scale heat recovery:
12 months of utilizing VAM for boiling water

Partly funded by ACARP
(Australian Coal Association Research Programme)
PROVEN TECHNOLOGY
VAM PRIMARY FUEL FOR GENERATION OF ENERGY

2nd DEMO INSTALLATION AT A COAL MINE
- small scale generation of energy

Award winning Greenhouse Gas project
2001 - 2002

On 5 April 2005 awarded as
best Greenhouse Gas Project
funded by ACARP
INSTALLATION AT WestCliff COLLIERY, BHP Billiton AUSTRALIA 2005 - 06

Demonstration of large scale heat recovery.

250 000 m³/h of ventilation air generating 6 MWe.

Taking only 1/5 of the shaft air volume.

Partly funded by AGO
(Australian Greenhouse Office)
LARGE SCALE
VAM PRIMARY FUEL FOR GENERATION OF ENERGY

3rd DEMO INSTALLATION AT A COAL MINE
-first large scale generation of energy

➢ Site installations started in summer 2005
On site 3Q 2005:

- 4 VOCSIDIZERs
- 2 Fans (250 000 Nm3/h)
- Turbine-generator (6 MWe)

Start-up planned for Spring 2006
A VAM POWER PLANT HAS 2 TYPES OF REVENUES

1. The value of energy produced.
2. The value of emissions reduced (CER).
Simply ventilating VAM to atmosphere means *wasting* the potential of *an annual 100 to 200 GWh of electricity* - per coal mine ventilation shaft.

**RULE OF ADDITIONALITY**
- making the difference for VAM Power Plants

- The *value of energy alone will finance only few projects*, with
  - high value of energy and where
  - long payback times are accepted (as for normal power plants).

- *Most cases require CER-financing*, to be realized.
  - This fulfills the rule of Additionality, an important requirement for CDM/JI Projects.
ANNUAL GREENHOUSE EFFECT on Global Warming
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Coal mine VAM
800 000 m³/h, 1%
(50 000 t CH₄/yr)

~1 million tons of CO₂e
ANNUAL GREENHOUSE EFFECT on Global Warming

Coal fired Power plant 300 MW<sub>th</sub> =

Coal mine VAM
800 000 m<sup>3</sup>/h, 1%
(50 000 t CH<sub>4</sub>/yr)

~1 million tons of CO<sub>2e</sub>
ANNUAL GREENHOUSE EFFECT on Global Warming

½ million cars = ~1 million tons of CO$_2$e

Coal fired Power plant
300 MW$_{th}$ =

Coal mine VAM
800 000 m$^3$/h, 1%
(50 000 t CH$_4$/yr)
1. VOCSIDIZER *can abate* VAM

5 CONCLUSIONS on VAM (Ventilation Air Methane)
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3. Project WestVAMP in Australia will be the World’s *first* large scale *VAM Power Plant*

4. CER financing will be *required* for most VAM projects to be realized.
5 CONCLUSIONS on VAM (Ventilation Air Methane)

1. VOCSIDIZER *can abate* VAM

2. VOCSIDIZER *can convert* VAM into useful energy

3. Project WestVAMP in Australia will be the World’s *first* large scale VAM Power Plant

4. CER *financing* will be *required* for most VAM projects to be realized.

5. *One single* VAM Power Plant can reduce *annual* emissions of *~1 million tons CO2e*.
VAM to Energy – 1st commercial project

Richard Mattus
Business Manager
Energy & Process Systems

MEGTEC Systems

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