1. Official commercial VAM projects
2. VAM RTO pilot projects
3. VAM technology
COMMERCIAL SIZE VAM PROCESSING
officially announced as successful installations

UNECE Best Practice Guidance case study

JWR 60 000 Nm³/h

McElroy, 180 000 Nm³/h

DaTong 375 000 Nm³/h

ZhengZhou 60 000 Nm³/h

VAM Power Plant GaoHe 1 080 000 Nm³/h

VAM Power Plant WestVAMP 250 000 Nm³/h

= Single unit

= Muliple unit

= Power plant
COMMERCIAL SIZE VAM PROCESSING
officially announced as successful installations

- DaTong 375,000 Nm³/h
  2011 - 2016

- ZhengZhou 60,000 Nm³/h
  2008 -

- McElroy, 180,000 Nm³/h
  2011 - 2015

- JWR 60,000 Nm³/h
  2011 - 2015

- VAM Power Plant WestVAMP 250,000 Nm³/h
  2007 - 2016

- VAM Power Plant GaoHe 1,080,000 Nm³/h
  2015 -

Achieved:
- 2 million CO₂e
- 300,000 MWh

= Closure due to moving of long wall
= Lack of financial conditions
COMMERCIAL SIZE VAM PROCESSING
officially announced as successful installations

By 2018:

By Sept 2017:
✓ 1.17 million CO$_2$e

“McElroy,”
180,000 Nm$^3$/h
2012 -

VAM Power Plant GaoHe
1,080,000 Nm$^3$/h
2015 -
2. Pilot projects

- **First successful VAM pilots**
  - in 1994, processing VAM several months at British Coal, UK
  - In 1997 - 98, generating steam during 12 months at BHP, Australia

- **VAM abatement China** - several projects by domestic RTO manufacturers. No info found on status or performance.

- **VAM abatement Australia** - recent pilot tests with domestic RTO manufacturer and with (non-RTO) at university. Pilot plant projects on hold.

- RTO producers established in other industrial applications are seeking VAM pilot installations.
**VAM PROCESSING AND CARBON CREDITS**

1992 **Rio Conference**
- Agreement to establish the UN Framework Convention on Climate Change, UNFCCC

1997 **Kyoto Conference**
- Agreement to reduce emissions and to introduce mechanism of Carbon Credits
  - Official launch of Kyoto related Carbon Credits

2009 **Copenhagen Conference**
- Failure to extend Kyoto Protocol
  - Official launch of Kyoto related Carbon Credits

2015 **Paris Agreement**
- VARIOUS ETS (Emission Trading Schemes)

**CARBON CREDITS TRADING**
- EU ETS
  - CARBON CREDITS TRADED

**VAM PROCESSING**
- VAM PILOT
  - British Coal, UK
  - BHP, Australia
  - CONSOL, USA

**LARGE SIZE VAM INSTALLATION**
- Power plant, WestVAMP, Australia
  - Abatement, hot water, China
  - Abatement, McElroy, US
  - Abatement, JWR, US

**LARGE SIZE VAM**
- Power plant, GaoHe, China
  - Abatement, hot water, China
  - Abatement, hot water, SongZao, China

1992 Rio Conference - Agreement to establish the UN Framework Convention on Climate Change, UNFCCC

1997 Kyoto Conference - Agreement to reduce emissions and to introduce mechanism of Carbon Credits

2009 Copenhagen Conference Failure to extend Kyoto Protocol

2015 Paris Agreement

CARBON CREDITS TRADING

1994 VAM Pilot British Coal UK

1997 VAM Pilot BHP Australia

2001 EU ETS Carbon Credits Traded

2007 LARGE SIZE VAM INSTALLATION
  Power plant, WestVAMP, Australia

2009 Official launch of Kyoto related Carbon Credits

2009 VAM Pilot CONSOL USA

2012 LARGE SIZE VAM
  Power plant, GaoHe China

2015 LARGE SIZE VAM
  Abatement, JWR, US

2018 LARGE SIZE VAM
  Abatement, McElroy, US

LARGE SIZE VAM
  Abatement, hot water, SongZao, China

VARIOUS ETS (Emission Trading Schemes)
3. VAM processing technologies

- Traditional RTO (Regenerative Thermal Oxidation) technology, as proven in the commercial VAM installations already executed.

- Provided by RTO suppliers with extensive experience from thousands of RTO installations (since the 1970’s and forwards), whereof many in industries with very high demands on safety.

- VAM processing technologies under development, such as:
  - new methane catalyst processes
  - lean gas turbines
  - concentrators

These are all yet to be demonstrated.