

# Responsible Ventilation



SAFETY



## Significant cost saving and reduced environmental impact through control of auxiliary booster fans

**Electricity is generally the single largest cost to an underground mine, with the auxiliary ventilation systems being a mine's single largest consumer of electricity at 30 - 50%.**

PBE's Responsible Ventilation management system controls these fans so they are operational only when required. These conditions can be triggered by environmental events such as unsafe gas levels and temperature, vehicles or personnel entering the area (mine tracking) or through specified scheduling.

The cost of PBE's Responsible Ventilation system can be paid for by the saving in electricity, with potentially no capital outlay. Additionally, the system reduces the carbon footprint which has an environmental as well as a social impact. ◆

### Benefits/Features

- Dramatic operational cost saving by the significant reduction in energy usage by directing ventilation where and when required
- Lower cost alternative to an industrial Ventilation on Demand (VOD) system by controlling only the Auxiliary Fans (sometimes referred to as booster fans)
- Comprehensive reporting package - showing real time savings and operational performance
- Additional improvements in mine safety through tracking of personnel and provision of environmental monitoring
- Scheduling module with manual override to provide automation or remote control of the fans
- System works with existing infrastructure (radiating cable, fibre and Wi-Fi backbones etc.) or with existing PLC and SCADA networks through simplistic GUI interface
- Tracks the usage and whereabouts of all auxiliary fan equipment
- Extends the life of ventilation equipment
- Reduces environmental impact
- Licensing options allow a flexible pricing plan, including payments related to cost savings to minimise capital outlay (details on request)



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## Vantage - PBE's Control and Monitoring Platform

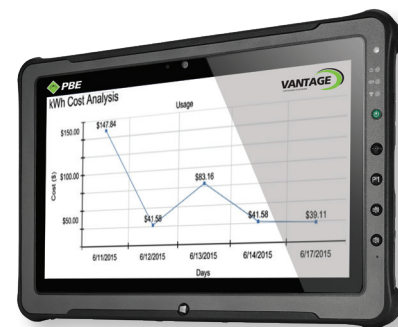
The Responsible Ventilation package is a module within Vantage, PBE's proprietary control and monitoring platform.

In addition to Responsible Ventilation, Vantage is used to monitor the complete suite of PBE's safety and productivity solutions, including tagging and tracking, collision avoidance/proximity detection, environmental monitoring, communications infrastructure and 3rd party infrastructure.

Specifications	
<b>SERVER REQUIREMENTS</b>	
<b>Hardware</b>	
<b>Processor Type</b>	Minimum: AMD Opteron, AMD Athlon 64, Intel Xeon with Intel EM64T support, Intel Pentium IV with EM64T support
<b>Processor Speed</b>	Minimum: 1.4 GHz
<b>Memory</b>	6.0 GB RAM
<b>Hard Drive</b>	25 GB
<b>Software</b>	
SQL Server 2008 (Express or higher). Microsoft .NET Framework 3.5 or higher. IIS Windows Component as well as IIS Server Roles. An email account on your local SMTP server.	
<b>CLIENT REQUIREMENTS</b>	
<b>Hardware</b>	
<b>Processor Type</b>	Minimum: AMD Opteron, AMD Ath- lon 64, Intel Xeon with Intel EM64T support, Intel Pentium IV with EM64T support
<b>Processor Speed</b>	Minimum: 1.4 GHz
<b>Memory</b>	2.0 GB RAM
<b>Hard Drive</b>	10 GB
<b>Software</b>	
Microsoft .NET Framework 3.5 (or higher). Microsoft Silverlight 5.0 Plug-in (or higher). Browser capable of running Microsoft Silverlight 3.0 (or higher) Plug-in.	

COST SAVINGS BREAKDOWN*						
Day	Full Usage (kWh)	Zone Usage (kWh)	Savings (kWh)	Full Cost (\$)	Zone Cost (\$)	Savings (\$)
6/11/2015	960.000	640.000	320.000	\$221.76	\$147.84	\$73.92
6/12/2015	960.000	180.000	780.000	\$221.76	\$41.58	\$180.18
6/13/2015	960.000	360.000	600.000	\$221.76	\$83.16	\$138.60
6/14/2015	960.000	180.000	780.000	\$221.76	\$41.58	\$180.18
6/17/2015	960.000	169.326	790.674	\$221.76	\$39.11	\$182.65
<b>Total</b>			<b>3,270.674</b>			<b>\$755.53</b>

*Typical savings achieved.*



## About Us

PBE Group ("PBE") provide an adaptive and flexible integrated solution where a reliance on safety and productivity is essential. PBE is a true global systems provider for the mining, tunnelling, construction and associated markets. Our specialised engineering team integrates our industry specific manufactured products and best in class 3rd party products to ensure a sophisticated, robust and commercially viable solution. Our growth in international markets is based on the key verticals of Technology, Power and Service Delivery – fundamental in any industrial project. Our experience in confined space and underground construction has enabled PBE to complete over 850 projects in more than 60 countries with 320 staff and 18 regional offices. ◆

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