

PBA NEWS

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The EcoGas600 Range...

Our commitment to environmental standards surrounding the handling and management of SF₆ gas was an ideal opportunity to find more accurate methods and, as a result, the PBA EcoGas600 range was born!

Sulphur Hexafluoride (SF₆) gas is used for its excellent insulating properties in high voltage switchgear, however it is also an extremely potent greenhouse gas, the subject of stringent legislation governing handling and management practices and stiff penalties. Realising a knowledge gap exists between the legislation and the ownership of SF₆ assets PBA identified a need for better ways to track, use and manage stocks of SF₆ and developed a range of products to ensure ease of use as

specialise in fieldwork so you can be confident they are fit for purpose.

EcoGas600G – built for portability, the PBA gas carts are easily loaded through the side door of a van to enable transport to even the most remote site. Despite its compact size, this gas cart can de-gas to residual gas pressure of less than 1 millibar, meeting the most stringent clients' and switchgear manufacturers' specifications. The 600G is very effective in the lower pressure range (typically less than 2 bar) required for full degassing of equipment. The cart comes with scales built in eliminating the need to weigh individual bottles and has been designed for simple DIY servicing and filter replacement.



well as compliance with industry and legislative standards. The added bonus to this suite of products is superior SF₆ asset management capability.

The EcoGas600 range comprises a compact and powerful gas cart, user friendly filling kit, highly accurate mass flow meter and a centralised database allowing management of not only gas stocks but also asset information. All these tools have been designed, tested and refined by PBA's own SF₆ experts who

EcoGas600F – this customised collection of SF₆ fittings specific to asset owners' requirements is the 'one-stop shop' containing all the fittings, carefully laid out for quick and easy selection. This integrates perfectly with the 600G. When a circuit breaker alarms and requires a gas top up, the bane of field staffs' lives is rushing around searching for fittings to facilitate connection of a bottle – no more with the EcoGas600F!

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EcoGas600M – an easy to use digital device capable of recording key measurements (dew point, pressure, temperature and flow rate) and for accurate determination of the amount of SF6 lost from equipment. Connected in series during a gas transfer between two vessels, the mass flow meter integrates perfectly with our gas cart and is compatible with other carts. It can import asset owner information (sites, CB data etc) and can export transaction data for upload into the EcoGas600D or other asset management systems. This device allows field staff to monitor, in real time, the flow rate of SF6 being transferred in a circuit breaker, as well as seamlessly record the amount of gas transferred to and from equipment. There are often manufacturer specified maximum allowable rates of gas transfer but how are field staff currently ensuring they are complying with these requirements?

EcoGas600D – a paperless, automated system to record and manage SF6 from any perspective. The system is used to record,

analyse and communicate gas transactions, identify leaks/losses and where all your cylinders are located (including quantities of gas held in each cylinder). Emissions trading schemes requires owners of SF6 gas to record individual transactions and levels of SF6 gas transacted (as a measure of losses); the EcoGas600M and 600D seamlessly integrate to satisfy these requirements and simplify annual reporting to a couple of mouse clicks to produce data-use statistics.

EcoGas600A – provides access to the 600D gas database via mobile phone and instant access to up-to-date cylinder information. This allows true paperless gas transaction recording as it's completed on site so there's no forms to lose or handwriting to decipher later on. Also due to database automation we have reduced the amount of information the end user needs to enter.

For more info on the EcoGas600 range check out www.pbanz.com

2015 EEA Conference

The 2015 Electrical Engineers Association Conference was held in Wellington and PBA used it as the stage to launch the EcoGas600 range of products. Proudly on display was our EcoGas600M (SF6 mass flow meter) allowing attendees to see how easy and user friendly SF6 gas transaction recording can be. Along with the mass flow meter, the SF6 gas database (EcoGas600D) demonstrated how the Mass Flow Meter and PBA's gas carts integrate to form a suite of SF6 handling and tracking products. The ability to access all this information from a mobile phone (EcoGas600A) was of particular interest to many visitors.

These exciting innovations captured plenty of attention at the Conference with many interested parties stopping by to check out the demonstrations and to have a chat with the PBA team at the stand.

As part of the Conference, John Pringle (PBA) and Andy McMahon (Transpower) presented a paper giving a brief overview on SF6 use, management and best practice. One of the main objectives was to provide awareness to asset owners on this topic – as such

John and Andy ran out of time due to the amount of questions this topic raised. John and Andy were subsequently awarded with the People's Choice Award for the best paper at the Conference.



PBA Gains Powerco Approved Contractor Status

Powerco is New Zealand's largest electricity distribution company in terms of network length, with 30,000kms of lines, and the second-largest by customers having 330,000 connections. Its electricity network encompasses the Taranaki, Whanganui, Rangitikei, Manawatu and Wairarapa regions, including the urban centres of New Plymouth, Whanganui, Palmerston North and Masterton. Powerco also owns the network in Tauranga and the surrounding rural areas including the eastern and southern Waikato, Thames and Coromandel regions.

As well as completing Powerco's contractor approval process, PBA has undertaken significant Powerco specific training to ensure our staff are familiar with the network systems and processes. Approved contractor status allows PBA to provide specialist high voltage services to Powerco throughout its network. PBA is currently engaged with Powerco to undertake transformer refurbishment at our purpose built facility in Te Aroha.

PBA's PREQUAL Requal



PREQUAL, previously known as CPNZ, is a New Zealand client led, fully outsourced, pan-industry contractor prequalification scheme originally set up with input from New Zealand's leading generation companies. PBA are qualified under Category 4 (Main or Controlling Contractor), which is the highest category and achieved 5 stars in our recent requalification with an overall score of 86% and achieved 100% in the following six of the twelve qualification categories:

- Management, Supervision and Business Continuity
- Safe Work Procedures and Practices
- Training
- Plant, Equipment and Vehicles
- Audit and Inspection
- Involving Employees

The improvement highlights PBA's commitment to continual improvement of its management systems and the engagement of all PBA staff. A copy of PBA's PREQUAL report is available on request.

A Quick Trip To Rio Tinto – Brockman

PBA were recently engaged by Rio Tinto to assist in the first programmed maintenance on the Brockman Four Syncline 220kV/33kV Regional Area Substation. Brockman was commissioned in 2009 and is located in Western Australia's Pilbara region. Numerous faults were found during the maintenance, including many oil leaks which were directly attributed to the extreme environmental temperature fluctuations, varying from 7°C in the winter to 40°C in the summer. The work included maintenance on fifteen disconnectors, eight circuit breakers, two 70MVA transformers, tap changers and their associated CTs CVTs and surge arrestors.

This was the first major maintenance outage at Brockman Four since commissioning and involved a high level of planning and safety. Logistics for this work was a huge challenge with Perth being 1500km away. A high degree of logistical risk was compounded by a tight timeframe which was mitigated using effective and timely planning. This job proved PBA's ability to overcome any barriers to deliver an effective outcome.

During the shutdown PBA encountered a leaking SF6 CB flange, fixed various flange oil leaks on both transformer banks as well as CB gearbox leaks. Whilst onsite PBA staff bumped into some local wildlife living in a cable duct, the hazard was quickly added to the JSA. The local inhabitant was about a meter long and PBA staff remained well clear.



PBA Registers - Competencies On The Fly

At PBA we're always investigating more efficient ways of 'doing things' - competencies and compliance is not excluded from this. Our electronic register which holds an individual's competency details has been rebooted with a multitude of improvements.

Not only can all our staff show you their current competency status, they can also download a copy of their course completion certificate – even when they're on the go, on a mobile phone!

Taking The Next Step In Oil Processing

PBA have taken possession of a 'state of the art', 4000 litre per hour, vacuum processing unit.

The processor, commonly known as a streamliner, was custom designed to PBA's exact specifications, and is being used by PBA to provide transformer related services to our growing customer base.

The system can be used for:

- Removal of moisture, gases & particulate from oil in non-energised transformers
- Filling or emptying power transformers
- Processing oil in bulk storage tanks
- Transferring oil from one location to another
- Pulling vacuum on the transformer main tank for drying out and filling purposes

It includes dual water in oil sensors, high quality, low watt density oil heating to prevent heat degradation of the oil, and triple stage particulate filtration, with the final level at 0.5 micron.

The system is highly automated, using PLC control, and includes automatic foam level control and numerous interlocked safety features.

For maximum efficiency, degas coalescing elements are used in the vacuum chamber to remove moisture and gases. These elements provide the most effective method for removing moisture and gases, and create fewer issues with oil foaming than other systems.

The system automatically records operating data, which PBA use to confirm accuracy and effectiveness enabling delivery of a consistently high standard of service to our customers.



PBA Welcomes Steve Brown

After moving back to New Zealand from Australia, Steve Brown has joined the team at PBA. Steve is an Electrical Fitter and gained his qualification as part of the Mighty River Power Apprenticeship Programme working for various contractors all over New Zealand on high voltage projects. After spending two and a half years in Australia working predominately on heavy industrial mining and high voltage projects, Steve has made the call to come home and pursue a career in the technical field. As part of this ambition, Steve is currently completing a Diploma in Electrical Engineering, Advanced Diploma in HV Plant, Communications and Secondary Systems Testing and a Cert 4 in Instrumentation via correspondence. Steve is currently based in Auckland with PBA but is originally from rural King Country.



Touch Rugby Sponsorship

Rugby, in all its forms, is a sport many members of the PBA team enjoys, whether playing, coaching or watching. When there was a knock on the door and a call for help to provide some support to a member of the New Zealand under 21 Mens Touch Rugby team, PBA jumped on board. PBA's support enabled William Hamilton to travel to Australia and captain the team in a three match test series against our beloved neighbours. The games were held in Cronulla at Remondis Stadium and the average temperature throughout the week was 30°C. Unfortunately, the Aussies won all three games (6-4, 10-2, 10-7) however the NZ team was considerably more competitive than previous attempts. William visited PBA and passed on his sincere thanks for the support as it helped make a surreal opportunity a reality. PBA wish William and the members of the under 21 team all the best.

