

PBA NEWS

PBA News Issue #14 April 2019

CONTENTS

Page 2
Ravensdown Christchurch Upgrade

Page 2
OilWatch600Q-CD Low Frequency
Transformer Core Dry Out System

Page 3
EcoGas600P Product Innovation

Page 4
PBA Welcomes

Wellington
41A Raiha Street
Elsdon, Porirua
PO Box 54191
Mana, Wellington 5022
Phone: 04 237 7297
Fax: 04 237 7163

Christchurch
Unit C, 33 Foremans Road
Hornby, Christchurch 8042
Phone: 03 344 2972
Fax: 03 344 2973

Te Aroha
20 Lipsey Street
Te Aroha

Otematata
2728 Otematata-Kurow Road
Otematata, Otago 9412

Hawkes Bay
18 Niven Street
Onekawa, Napier 4110

**Contact for further
information**
enquiries@pbanz.com

www.pbanz.com
www.ecogas600.com
www.oilwatch600.com

10 Year Anniversary



In March 2019 the PBA team recorded 10 years of operation.

Originally founded with offices in Wellington and Christchurch employing 10 staff, PBA has grown to over 35 staff across five New Zealand offices along with the establishment of a permanent Australian presence in November 2018. General Manager Vern Beleski summarises this growth as "not being easy but immensely rewarding" and "only achieved by having a plan supported by great staff and loyal customers".

The company's original market offering consisted of providing High Voltage Specialist Services delivered by arguably the best trained and equipped Technical Specialists available. Today the same applies in that the PBA team continue to be experts in their field and for many organisations their preferred HV Specialist Service provider. PBA CEO Rob Silcock states that "our growth and success was no accident, we had a vision, backed by a plan and we invested in people, in customers and technology".

The company's investment in technology has been driven by understanding and adapting to industry needs. Technical Manager John Pringle said "looking further than just having boots on the ground, we had to change as technology and our customers' needs changed" Hence PBA broke new ground in forming a Research and Development team in 2017.

Today PBA is a company that not only provides Speciality Services but also Specialist Solutions such as the EcoGas600 and OilWatch600 product portfolios. This diversification of PBA activities is reflected in the company's structure and planning and is the key platform to grow and future proof the organisation whilst providing added value to customers.

In closing, the PBA team wish to thank its customers, suppliers and industry partners for their support over the past 10 years and we look forward to maintaining your support in the future.

Meet Us At

TECHCON	Sydney	4 - 5 April 2019
EEA	Auckland	25 - 27 June 2019
PowerGen	Melbourne	14 - 15 August 2019

PBA News Issue #14 April 2019

Ravensdown Christchurch Upgrade



In late 2017 PBA commenced a yearlong project upgrading the 11kV reticulation system at Ravensdown's Christchurch Fertiliser Plant. As a continuous manufacturing operation utilising co-generation units this project utilised the full skill set of the PBA team headed by Tom Wech and Hayden Burrows to maintain operation of the plant as the various upgrades were applied. In addition to the initial programmed works the PBA team were able to identify

and recommend additional improvements within the project time line; improving efficiency and reducing operational costs.

- Replacement of the main 11kV switchboard including the installation of new feeder circuits
- Installation of a new 110VDC battery bank and charging system
- Refurbishment of two 11kV / 400V transformers
- Replacement of the generator protection system and steam turbine governor control system
- SCADA upgrade including interfacing new circuit breakers and protection to the existing platform
- Diagnosis and repairs to the 400V Power Factor equipment including a power quality audit of site Harmonics to determine site compliance
- Changes to the AVR system to support a power factor mode of operation to maintain a unity power factor at the incomer.

OilWatch600Q-CD Low Frequency Transformer Core Dry Out System

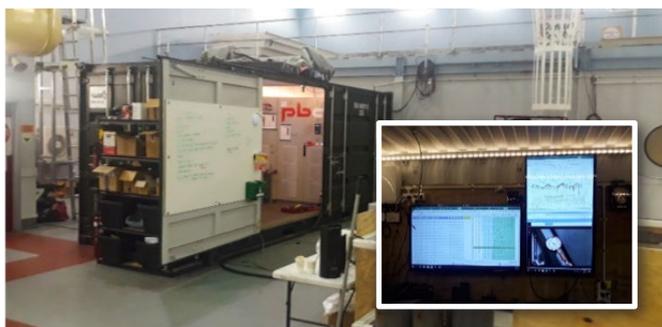
Developed by PBA's in-house Research and Development team the OilWatch600Q-CD is a portable Low Frequency Heating (LFH) solution enabling a transformer core dry out to be conducted on site, minimising costs and maximising transformer availability

The general principal of LFH is to heat a transformer unit in situ without oil and under vacuum using a power supply connected to the internal windings. By keeping the frequency of the power connected to the winding low, the current can be increased with a low voltage applied. The heating of the windings is created by the I^2R losses within the windings.

When utilising LFH, the best efficiency is gained when the heating and vacuum cycles are carried out together with a lower vacuum applied once the windings are at the desired temperature. The control and monitoring platform, developed by PBA Technical Specialist Josh Wade, provided a control system integrating LFH operation with ancillary monitoring and processing equipment.

Benefits

- Field portable solution
- Transformer windings heated more quickly than a traditional oven arrangement
- Accurate temperature management
- Ancillary devices fitted to the transformer not subjected to heating
- Reduced fire risk as heating is carried out within the sealed transformer tank
- Dry out time is greatly reduced
- Reduced energy costs as heating is concentrated in the areas that require it.
- LFH Core dry out ensures insulation paper DP reduction is virtually negligible



OilWatch600Q-CD system deployed at Rangipo NZ Underground Hydro Plant



EcoGas 600 P

Accurate remote monitoring of SF6 gas status

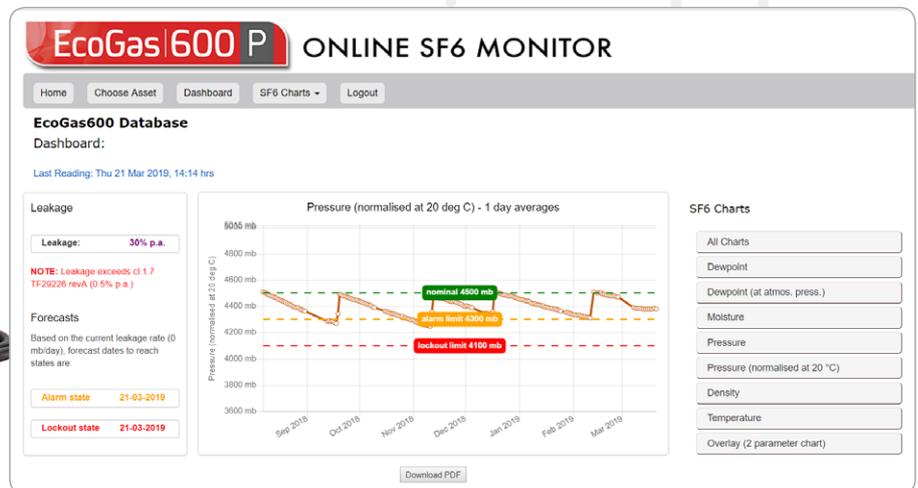
Product Innovation

Released November 2018 the latest addition to the EcoGas600 range of specialist solutions is the EcoGas600P, a continuous SF6 gas monitor optimised for remote asset monitoring.

The design brief for the PBA R&D team was to deliver a cost effective and scalable solution capable of providing accurate and reliable local and remote reporting of gas status along with a device based dataset supporting the provision of real time trend and alarm flags.

Utilising a IoT platform supporting a range of communications protocols; remote data when integrated with the EcoGas600D database provides historical and real-time leak rate data that supports device level emissions reporting available to update existing asset management platforms.

Monitor cloud based dashboard displayed in EcoGas600D database module



Measured Parameters

Dew point	-50 ... +30 °C (-58 ... +86 °F)
Pressure, absolute	1 ... 12 bar (14.5 ... 174 psi)
Temperature	-40 ... +80 °C (-40 ... +176 °F)

Calculated Parameters

Pressure normalized to +20°C (+68 °F)	1 ... 12 bar (14.5 ... 174 psi)
SF6 mixture density	0 ... 100 kg/m ³
Dew point, converted to Atm	-65 ... +30 °C (-85 ... +86 °F)
Moisture by volume, ppm	40 ... 40 000 ppm
SF6 leak rates	User Config.
Emission reporting	User Config.
Low Density Alarm	User Config.
Time to Top Up Alarm	User Config.
Dew Point Limit	User Config.

FEATURES

- Compact field solution
- Local display of key SF6 gas status measurements and alarm conditions
- Continuous SF6 emission and leak rate calculation by asset
- EcoGas600D Database Integration
- View field data in real time
 - Predicted time to top up
 - Predicted time to lock out
 - Parameter rate of change alerts
- Remote communications options

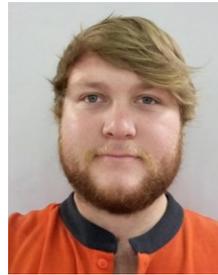
PBA Welcomes

Investing In the Future



Alasdair Lawson

Ali joined PBA in the role of MV Cable Joiner in mid-2018 based at our Napier Office. Married with two adult children Ali has a broad trade background including being a registered Line Mechanic and a qualified plumber. Before emigrating to New Zealand in 2007 Ali owned and operated his own plumbing business in the UK.



Caleb Mason

After completing electrical pre-trade at SIT, Caleb joined the Christchurch team as a Level 3 Electrical Apprentice in mid-2018. Currently working with the transformer specialist team Caleb is enjoying the challenge and learning involved by this project work. Outside of work Caleb, a keen sportsman, plays rugby at a Senior level, trains in Martial Arts and as a keen fisherman enjoys all water sport activities.



Tom Morgan

Tom is a second-year electrical apprentice based at our Wellington office. In the time that Tom has been with PBA he has been exposed to a variety of works and particularly enjoys large project activity. Tom has summed this up as "Versatility in many areas is a big goal moving forward through my learning and career with PBA". Outside of work Tom's interests include basketball, music and as an ex Chef any experience involving good food and drink.



David Grey

Joining the team at our Te Aroha Transformer workshop, David a registered electrician with broad industry experience has brought additional expertise in the testing and refurbishment of transformers. Married with 6 adult children, David spends his free time exploring interests that include photography and amateur radio; including the design and development of a Short-Wave Radio kit for the home DIY market.



Edward Birchler-Stockdill

Edward joined PBA in mid-2018 as a Level 3 Electrical Apprentice with a background in domestic and commercial activity. Christchurch based Edward has been enjoying his entry into the world of HV because of the challenge and learning that it entails. Edward has a strong interest in all things mechanical and in his spare time unless he is enjoying the outdoors is restoring a Series 2 Landrover.



Roux Kuhn

Roux, a professional electrician with over 20 years' experience in the power industry, joined PBA under our new immigrant sponsorship programme. Originally from South Africa, Roux brings a wealth of field experience to the team including qualifications in mining, cable jointing and the testing of MV systems. Since starting with PBA, Roux has been operating out of the Te Aroha Transformer workshop.



William Ireland

Fresh out of school, William is a Level 1 Electrical Apprentice based in Christchurch. He is the newest member of our Train and Retain program; introduced in 2010 to train the next generation of industry technical specialists. Outside of work William enjoys working on cars, touring on his motorbike and mountain biking.



Liam Diprose

With a bachelor's degree in Computer Engineering Liam has joined the Christchurch based R & D team in the role of Software Engineer. The recruitment of Liam reflects the growth of the Specialist Solutions PBA offers its customers. Liam expresses his work focus as pragmatic software development and the enjoyment of bringing ideas into reality. In his spare time Liam enjoys travelling, photography and tramping.