

# Beyond technical service

Delivering added value to customers has always been a top priority for The UK Carbon & Graphite Co Ltd (UKCG). In order to offer one of the most exclusive, complete and complementary technical services available and after studying the Americas market, the company approached Alfonso Martinez to join its Technical Service Department. As a former employee of AMI GE as a regulation specialist with many years of experience, Alfonso was confident that he could strengthen the technical support team and bring the additional service desired, as he describes here.

Because the steel industry constantly changes and evolves, we cannot stop at simply providing a high end quality product. Also recognised is the need to provide service of the highest level, service that goes beyond monitoring and troubleshooting electrode parameters to give full technical regulation analysis, recommendations and adjustments that improve overall furnace operation.

## Services and results

Even during UKCG electrode trials, the company's technicians can usually find areas of major improvement. At a recent ladle furnace (LF) trial for example, I was able to highlight an issue on the regulation system in use (an old PLC-based system). The root cause identified was an improper voltage feedback reference.

Since it was solely using an impedance control regulator, the effect on the operation was to cause excessive electrode breakage. More than 20 breaks per annum were recorded on a ladle metallurgy furnace within a basic oxygen furnace operation. This was coupled with high electrode consumption due to unstable regulation control.

Following a full investigation and after performing tests, some changes were recommended. The results shown in Table 1 in speak for themselves.

	Electrode consumption	Current range	Electrode breaks
Before	0.33 kg/ton	24-53 KA average	22 yearly
After	0.25 kg/ton	30-44 KA average	2 yearly
Change	-24%	-48%	-90%

Table 1. Measurements before/after changes.

In addition to the electrode consumption savings, the changes made decrease stress on the transformer and in turn, increase life expectancy. The improved stability of regulation now allows for accurate feedback, thus enabling correct error calculation and giving optimal control. Other advantages include less carbon pick up in the bath, lower harmonic distortion (reduced flicker) and the avoidance of electrode breakages caused by hard crusted slag or in electric arc furnace (EAF) applications, scrap.

Another successful recent study involved a 110 ton EAF, where I was supporting a trial of the company's 24in UK-X1 grade graphite electrodes and detected some opportunities in a profile that was using an inefficient current setpoint during the refining stages. UKCG helped in the development of a different profile, which is now saving 18% on electrode consumption, increasing neither Kwh/ton nor power on times (see Figure 1).

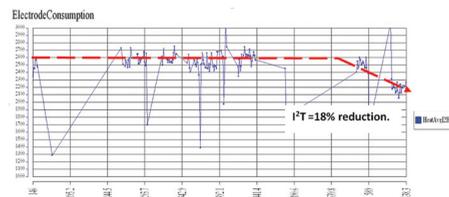


Figure 1. UKCG helped in the development of a profile, which is now saving 18% on electrode consumption, increasing neither Kwh/ton nor power on times.

## Latest metering technology

This is achieved by using a state-of-the-art metering system that can be connected either on the primary or secondary side, along with the regulator. The meter provides five times per second power flow measurements, they each come with a NIST-trace accuracy certificate and capture 256 samples per cycle disturbances, as well as detailed bi-directional power flow. They can be set to monitor DC and AC simultaneously and also have Ethernet-based remote communication with standard emails and web pages that can be used effectively for EAF and LMF furnace systems.

UKCG is providing a free technical service that enables efficient utilisation of power systems and the fully optimised operation of the electrode regulator. With its technical team's knowledge and accurate meter readings, out-of-control regulation or ineffective power programmes are detected at the earliest opportunity, giving customers the benefit of being able to reduce operating costs by avoiding thermal losses, broken electrodes, high Kwh per ton and low productivity.

As a company that cares about service, UKCG's goal is not only to present these trends and reports but also to advise of changes that can be made. In most circumstances, these changes can be implemented with immediate effect and at no additional cost, ensuring customers operate at maximum efficiency and productivity with the lowest operating costs.

This level of service brings UKCG its own merited rewards, as well as me personally. I have historically made similar cost saving changes in my previous employment although, at that time, there was always a level of expectation due to the cost of receiving this type of technical visit. I am now finding my role more fulfilling, in the knowledge that the cost savings found during visits or by remote monitoring/communication are in fact a real bonus, fully appreciated by customers. They regard this service as value added to our products rather than an expected conclusion. This refreshing approach enables a clearer thought and recognition process to be realised. The success rate in recognising ways to save costs for customers has been quite a phenomenon, resulting in a 100% rate of re-orders from customers who have granted UKCG the opportunity to supply and service their

accounts during the past six months. This is a true testament to product and service being combined to great effect.

It is due to the increased EAF electrode sales in the USA that UKCG Technical Service LLC has been created. This USA-based company permits a more responsive, complete and efficient service for North and Central American customers, with considerable scope and organisation to handle the company's continued growth, while maintaining its highly regarded service levels.



## Future projects

UKCG companies are constantly seeking further opportunities by researching, testing and finding genuine solutions. In 2012, work began on a project with Nucor Yamato's well-known regulation engineer, Omar Quintanilla. This project involves the design of a system that is expected to eliminate the risk of any possible breakages in LF applications.

This technical alliance will show promising results, having the product fully tested on one of the world's most efficient furnaces. Being able to work with such individuals and companies enables accurate testing of this technology. We are confident that the realisation of our vibrant service and product ideas will enable us to change the way electrode companies service the industry.

The company's year-on-year growth patterns speak volumes for UKCG on an international level. Having been awarded the Queens Award for Enterprise in 2011, the company has not remained static and is set for another record-breaking financial year.

UKCG is growing its technological capacity, while continuing to manufacture and supply top quality products. The company strives to give customers benefits that no other electrode company will. It is a refreshing and positive outlook for UKCG customers, with so much more to come. In the near future, more information will be available about product innovations currently in the pipeline.

## Reader Reply No.43



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