WiringMatters
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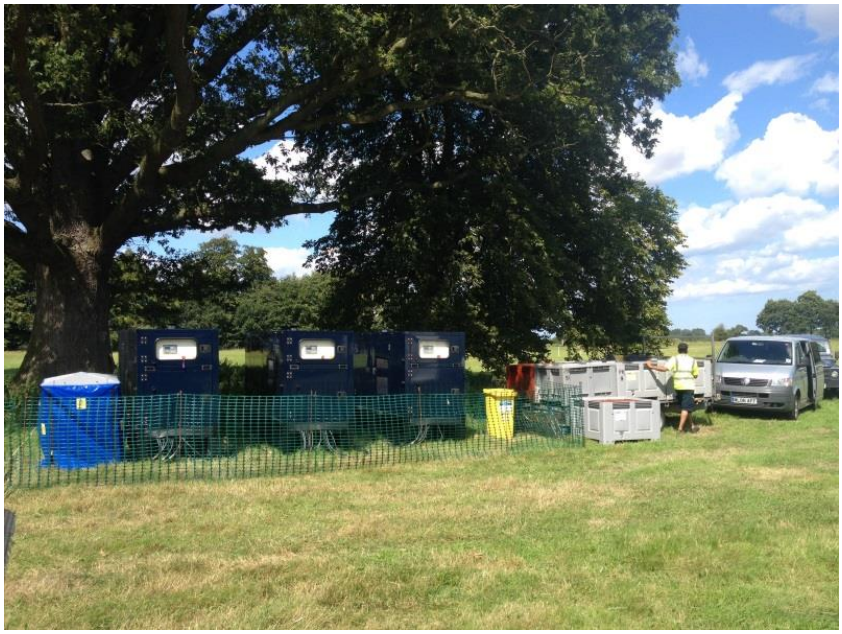
Electrical installations at live outdoor venues

In the second article of a series looking at electrotechnical job roles in the entertainment industry, Wiring Matters talks to ABTT member Shaun Pearce about designing and installing electrical installations for live outdoor venues.

Live music and related events contribute significant sums to the UK economy, with live music alone contributing more than £1 billion annually – the entertainment industry as a whole is reputedly worth £44 billion per year. A part of that is the burgeoning festival scene, with many small boutique festivals popping up around the country, vying for attention amongst the stalwarts such as Glastonbury or the Reading Festival. With the summer season about to get into swing, Shaun Pearce of Pearce Hire discusses their activities as an event power contractor.

Could you give the reader a brief overview of your company, and how you ended up doing what you do now?

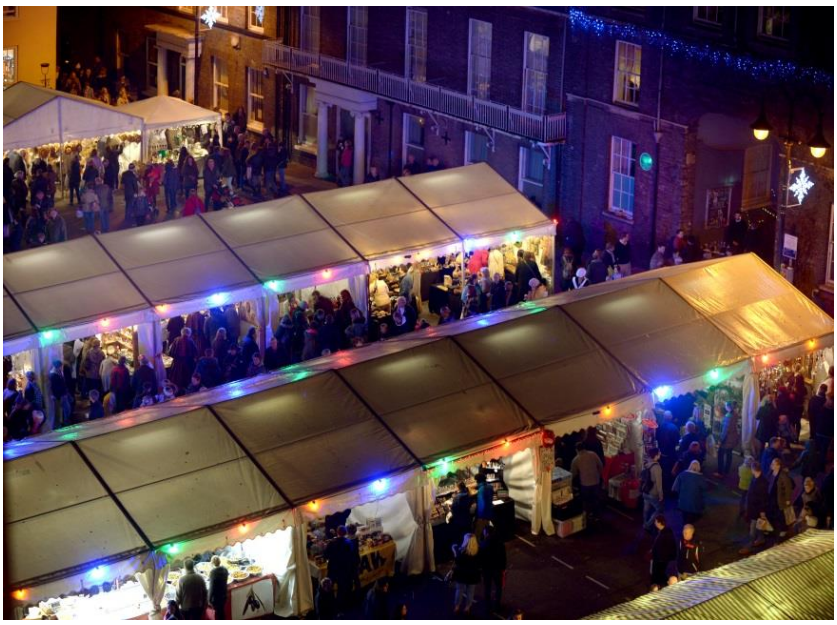
We provide a range of technical services to the events industry, such as audio, stage lighting and rigging. The mainstay of the business though is power distribution including generators and site lighting. Like many companies in this industry Pearce Hire came together by chance. I built my own Public Address system and operated a mobile DJ service from the age of 14. I did an electrical apprenticeship at Redring Electric (a company that will be familiar to many readers!) and having completed that the scene was set – an interest in sound and lighting coupled with a job as an electrician. I left Redring and started work as an electrical contractor, continuing my entertainment interest by working with local bands and on nightclub installations. Having expanded into PA and lighting hire I found a niche market (well, it was then!) providing power services for gigs and events. Back in those days there was not much in terms of bespoke power distribution, generators were unreliable and I was one of very few qualified electricians working in the industry. I worked for many industry companies and then a spell at Glastonbury led to more work in Nigeria, Kenya and Uganda. All this time I was continually expanding my stock of equipment; we built all of our own power distribution equipment, which is a practice that continues to this day. We now have our own generators, miles of cable, hundreds of distribution units, lots of site lighting and a 15 thousand square foot warehouse in Peterborough. The company now has 17 employees and annual turnover of over £2 million.



Blickling Hall Proms concert - three generators in synchronised set up

What is the typical year like for you? Much of your work is festival and event based, what keeps you going over the winter months?

In the winter months there is the maintenance to be done – every distribution unit is taken apart and fully tested. Of course over winter there are still related events and we provide power services for Christmas markets, Christmas trails, fireworks events and architectural illuminations. We also do corporate events as well as providing electrical testing and maintenance services for venues such as the Cambridge Corn Exchange, schools and colleges etc. We also have sound and lighting departments, which are very busy during the winter months.



Bury St Edmunds Christmas Fayre

A lot of work is usually short notice, how do you go about actually designing systems? Or is it achieved 'on the fly' and verified as you go?

We have to design to a degree to ensure that we take the correct equipment to site, but things tend to alter considerably once on site. Some jobs are on the fly, usually due to last minute confirmations, however, we always ensure all circuits are tested and verified before use.

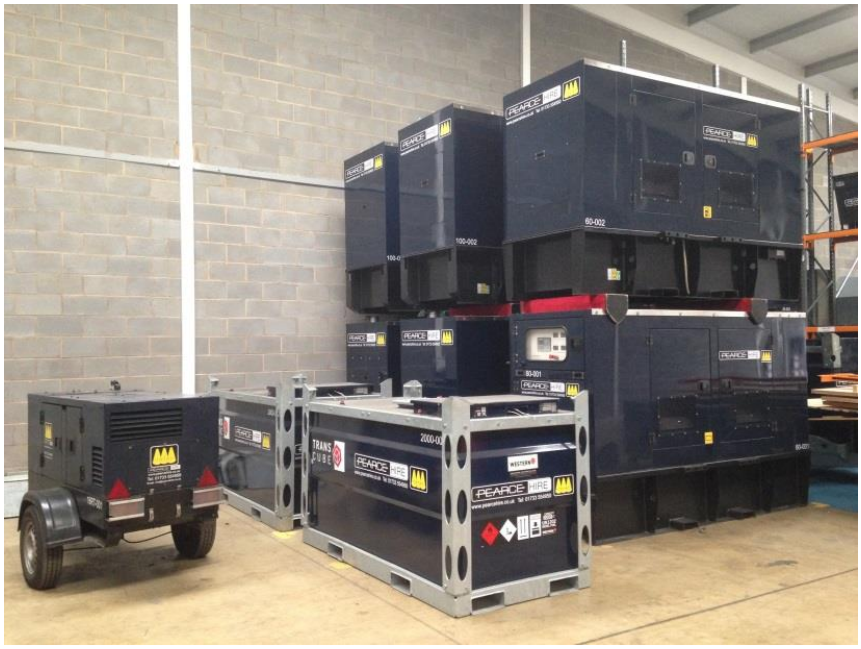
Some jobs are unusual and in riskier locations. An example that comes to mind are the Forestry Commission Concerts – what is involved in such a project? Where do you start?

Apart from the remoteness there's not much difference between these and a standard greenfield site. The riskier locations we have worked in would include ship naming ceremonies on docksides, an opera in a disused chemical factory and a party on a roundabout at Heathrow airport (Richard Branson's idea – don't ask!). Some events are riskier by virtue of where they are – the lack of health and safety culture in places such as Qatar and Africa is something that springs to mind …

As with any project, planning is key but getting the correct information from the client and production management team from the outset is the most vital element.

Usually the distribution is made up of stock units used in a variety of environments. Do you design and/or build your own? What are the requirements for such equipment?

We design all of our distribution, all our rubber boxes are manufactured by SES electrics but we do all the internal wiring and fit our own circuit protection so as to maintain the same standard. All our distribution designs are structured so as to be completely modular and versatile.



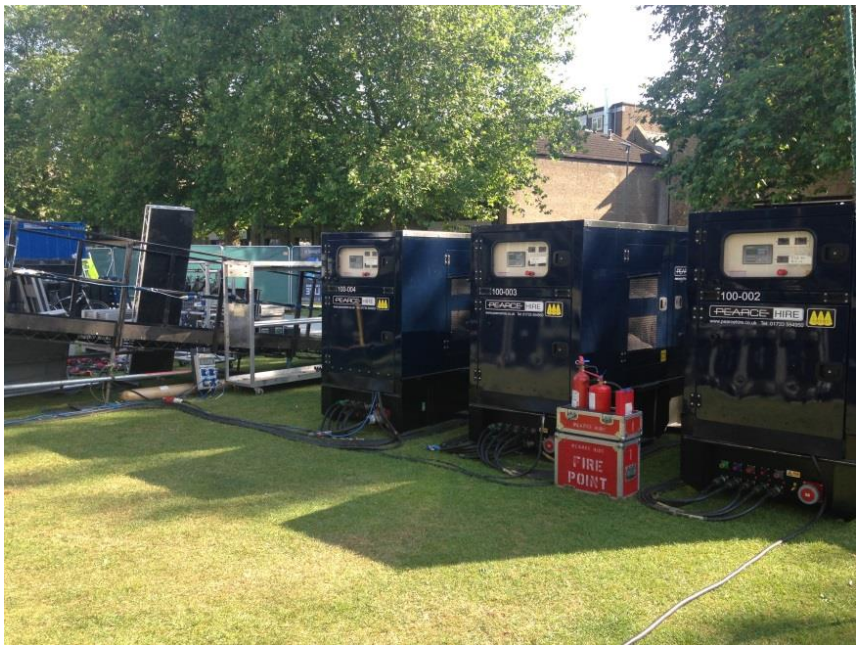
Pearce Hire warehouse - generators and fuel tanks ready for hire!

Given the increase in LED lighting and electronic power supplies in equipment are you having to put in any additional measures to cater for power quality problems?

We have not had any power supply issues as yet (probably due to planning), however, we are aware of the underlying problems and when necessary we have increased the neutral cross sectional area and the rating of the generators to reduce the chances of a problem occurring.

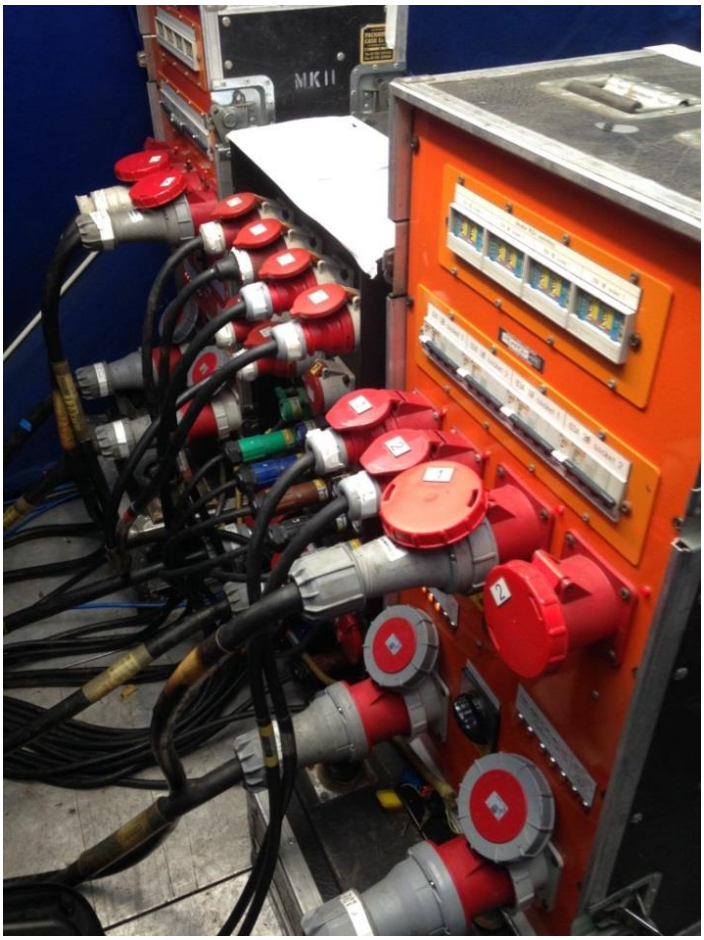
As an industry we're not shy of consuming large quantities of reliable power for short durations. Energy efficiency is hard to achieve using more traditional non-renewable sources so how to you try to reduce your carbon footprint?

We achieve this in many ways. We only use EUIIIa emissions compliant generators (they meet the stringent European emission standards for CO_2 & Greenhouse gas emissions. Find out more at https://www.dieselnet.com/standards/eu/nonroad.php) and we keep the running hours to a minimum. We continually strive to reduce load and have invested heavily in LED technology in terms of both site and stage lighting. Where possible we also use on-demand generator systems. For example, instead of running a single 300 kVA generator, we use three 100 kVA sets with only one running for 24 hours while the others switch on as the load increases. This significantly reduces fuel consumption and consequently our carbon footprint.



Pop in the Park Cambridge - triple synchronised generator set up

What we have found is that the best way of reducing the carbon footprint of an event is for the event organisers to engage with us at an early stage. Entering into a long term contract not only has commercial benefits but enormous green benefits; working alongside a client for several seasons enables us to gauge how they work and where we can make significant reductions in the power supplies. For instance, after the first year we may find that all the stage generators can be reduced from 300 kVA to 200 kVA, or we might find a centrally located generator position supplying several bars, stages and concessions is better than smaller distributed generator sets. A common cause of oversizing generation capacity is the perceived demand based on hardware, not actual loads. As an example, lighting companies will often ask for a 400 A three-phase supply, because that is what the connectors on their



Cambridge University sponsors dinner and presentation – distribution set up

main distribution are rated at. Often the loads are actually much less, but usually we are asked for that size of supply so we ensure we have the capacity to provide it.

Longer term relationships also allow for us to invest in the latest power saving technology. If we have a client that looks for the cheapest supplier every year without any loyalty, in order for the job to be won they will end up with older technology, which is not the most efficient and costs more to run. A commitment to a 3-5 year contract allows us to look into ways to reduce costs for them and make the whole process more efficient, such as by investing in LED lighting. This is an environmental win-win situation for both the client and us as we are both working in tandem to reduce an event's carbon footprint.

General electrical qualifications are typically geared towards mainstream electrical contracting industries. How do you approach the need for competent staff? Is there a skills gap? Are you worried about future skills or lack thereof?

This is a constant issue and we struggle to get good electrical apprentices from our local college as they only study a domestic wiring course – this knowledge level is okay for us to a degree, but our problem is that we cannot give them the relevant experience in a domestic environment. So we are constantly on the lookout for competent electrical staff; we have our own staff plus a plethora of regular freelancers, but we are always on the lookout for more.

Like most of the industry, we find our crews by word-of-mouth and usually this is the best way of attracting good people. We are finding that there is definitely a skills gap – it seems endemic across all technical trades in this country, not just in our industry. I think the UK has ignored technical training for too long and now we are seeing the consequences. So I am concerned there's not enough to go round and it may well end up with the best staff going to the companies who can command the highest rates – in our industry that's often those working in the corporate events sector.

Field Day Festival, Victoria Park, London - equipment bone yard (stores!)

Aside from electrical knowledge, what other skills/training do your crews have?

All our project managers are trained in first aid as they may be working remotely (in a forest for instance!) and this knowledge could save someone's life. Other training includes forklifts of many varieties, working at height and International Powered Access Federation (IPAF), electrical testing and certification, asbestos awareness, manual handling, generator operation/service, portable appliance testing, trailer towing, the new CDM regulations – the list goes on!

What standards and/or other guidance documents do you use for your work?

Obviously BS 7671 and BS 7909 are the main electrical ones, but also the purple guide (which was updated from the HSE publication HSG195) and relevant guidance for compliance with Lifting Operations and Lifting Equipment Regulations (LOLER). I also sit on the Powerful Thinking group as the Production Services Association representative and this looks to try and reduce energy usage at events across the sector.