

# AMPS Power

## Does the UK need STOR?

An AMPS special report

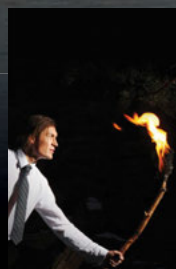
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# welcome

I hope you've all enjoyed the long summer. Autumn is now here and while nature might be thinking about a rest at AMPS we're as busy as ever.

When Wendy Grafton left her BDM role she left big shoes to fill. I'm delighted Stuart Spooner and his team at Motif Creative – working in collaboration with Angela Barnatt in Peterborough – have managed to pick-up the loose ends and move AMPS forward. Wendy did a great job – and will continue to be missed – but her departure and the new budget discussion have allowed us to focus closely on what needs to be done.

The Technical Committee are active and getting to grips with a number of key issues including Grid Code legislation and quality standards. Their work consulting with the National Grid and Department of Energy & Climate Change (DECC) is both promising and exciting.

EUROPGEN remains a pressing challenge. VDMA in Germany have envisioned a European Association of companies with a budget of €200,000 per annum: The AMPS Council – in consultation with members and our French and Italian equivalents – have rejected this option. The future looks set to be decided at a meeting on 1st October in Paris: Do we – UK, France and Italy – start a new organisation, provisionally called EUROGENSET, or do we defer to the VDMA model? It will be a difficult and potentially fraught meeting, and I hope that we can come out of it with a clear roadmap.

I remain committed to AMPS and its future, but I've also reached the point where it feels right to hand the Director General baton on to a suitable candidate. Consequently – as Robert mentions – I am here announcing my intention to retire. I remain flexible on a date and will time my actual departure to coincide with the appointment of a successor. Until then, I hope you enjoy this edition of AMPS Power, and if there is any feedback you have – or any suggestions for things you'd like to see in the magazine – please don't hesitate to contact. As in the rest of AMPS' activities, your involvement is always much appreciated.

Roger Lane-Nott  
Director General  
email: [dg@amps.org.uk](mailto:dg@amps.org.uk)



## The View from the Chair



**When I was last AMPS chairman – back in some dim and distant past when dinosaurs still roamed the earth – we found ourselves at a watershed. AMPS founder Gerald Parkinson wanted to retire and a new figurehead was needed. Gerald performed many roles, and the prospect of**

**navigating a new course without him at the helm presented a formidable challenge. We decided then to outsource AMPS' clerical requirements to the AEA, a decision vindicated by the great job done for more than a decade.**

Once again, however, I think we are reaching a critical juncture and facing the challenge of transition. First, we saw the departure earlier this year of Business Development Manager Wendy Grafton. Now, following in her wake Director General Roger Lane-Nott has intimated he would like to retire if and when a suitable replacement is found. Roger has served AMPS marvellously and deserves our sincere thanks and well wishes. Selfishly, however, his departure creates a void difficult to fill, and the sooner we start looking the better: This is a critical role, especially given the effort AMPS and Roger have contributed within a resurgent EUROPGEN.

Cometh the hour, cometh the man (or woman)! Do you know anyone from our industry who'd be suitable as the next AMPS Director General? It's a part-time position but we're looking for an inspirational leader with the enthusiasm and skills to develop AMPS' voice in the power generation industry. Any suggestions will be gratefully received – Could it even be you?

Today, AMPS offer its members greater benefits than ever before: Lobbying in Europe via EUROPGEN or technical papers; the Jargon Buster publication; raising AMPS members profile by running industry events; the expanded AMPS Power you're currently reading. We are also nearly ready to rollout our technicians' accreditation programme. (Look out for more details soon.) All of these represent exciting additions that need funding. To this end, we're introducing a tiered membership fee structure that allows us to continue to deliver the improved services – and develop new ones. Many smaller members will find their membership fees reduced, while larger companies will be asked to contribute a little more. We understand an increase in costs is never welcome but we hope those affected will understand the value to all of having a dynamic association developing upon a sound financial structure.

Robert Beebee,  
AMPS Chairman



# Earlybirds set for a great conference

**This year was the first in which an earlybird booking scheme for the AMPS conference was used, and we've been delighted with the response.**

Early confirmation helps AMPS in planning the event, while members benefit from: 10% off the regular price; the opportunity to choose particular tables and seats, and the reassuring guarantee of tickets.

Here are some of the companies who've already secured their places:

Deep Sea Electronics  
**www.deepseapl.com**

Jenelec **www.jenelec.co.uk**

Morris site machinery **www.morrismachinery.co.uk**

Bradgate Containers **www.bradgate.co.uk**

This year's theme is **Future Strategies**. More details will be released soon but we're confident it's going to be an incredible event with some great speakers and entertainment in the pipeline.

## Future business

With the UK currently the world's leading exporter of generating sets what can be done to keep our manufacturing sector competitive against the rise of overseas competition?

## Future resilience

With mainstream concerns over UK & European power security and cost, what role do our members and their products occupy in meeting the technical and political challenges of the future?

## Future talent

What measures are being taken to ensure the next generation of graduate engineers have the skills and aptitude to succeed within our member companies, and what can be done to encourage more women into the power generation sector?

## Future AMPS

With greater emphasis already being placed on lobbying, technical consultancy and training opportunities we'll be outlining the future direction of your association, while asking for your guidance and feedback.

**Book today to ensure your involvement.**  
**Contact [ab@amps.org.uk](mailto:ab@amps.org.uk)**

*Would you like to be a Conference sponsor?*  
*visit [www.amps.org.uk](http://www.amps.org.uk)*

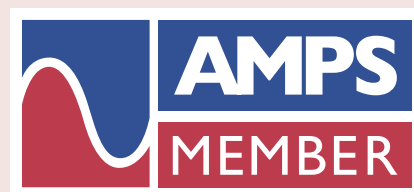


# Make the most of the new logo

The new AMPS Member logo is our collective trademark. Used correctly it identifies member companies as being active and up-to-date, and provides specifiers and customers with a reassuring trade mark indicating professionalism, technical compliance and commitment to the industry.

Some members are still not using the latest version on their websites and communications. If you're one of them head to **www.amps.org.uk** and access the Members' Area to download the new logo and easy-to-use guidance notes.

- Helps identify AMPS member from non-members – particularly important in competitive markets
- Indicates compliance with technical standards recognised throughout the industry
- Reinforces member acceptance of appropriate code of conduct and commercial terms



# More traffic visiting AMPS website

With 4500+ views over the past month, according to google analytics, the AMPS website is seeing more traffic than ever before. These views come from more than 1200 unique visitors that represents a healthy 36% increase over the same period last year (880). Not only is this good news for AMPS, but with a greater flow of traffic the online Member Directory should now be referring more web-users towards our member websites.

Importantly, [amps.org.uk](http://amps.org.uk) has also been climbing up the google top search rankings, with a generic 'AMPS' search yielding a valuable first page result. People are clearly finding the news, information and range of downloadable publications useful. If you haven't visited in a while, why not go and take a look?

**[www.amps.org.uk](http://www.amps.org.uk)**



**Why not take advantage of online advertising? Contact Stuart Spooner on 01686 622000 for more information.**

## Decision time for the future of EUROPGEN

By the time you read this, the decision on the future of EUROPGEN may well have been reached. EUROPGEN is meeting in Paris on the 1st October and Roger Lane-Nott, AMPS Director General, has been working hard in discussions with other European associations to try and reach a consensus. There remains a schism between the VDMA – representing the German manufacturers – and AMPS and the other European associations. The options for a future roadmap are currently presented as follows:

**Option 1.** Continue to operate EUROPGEN as we are with a Co-operation Agreement between trade associations. Continue with the working groups as already defined.

**Option 2.** Initiate the VDMA Proposal, which would be an organisation of companies with permanent staff in Brussels and with Trade Associations as non-voting but free membership.

**Option 3.** Set up a new organisation which would better represent the engine driven and smaller manufacturers who are unlikely to have a voice in the Option 2 proposal.

The latest news following the meeting will be posted first on the AMPS website.

[www.amps.org.uk/amps-news](http://www.amps.org.uk/amps-news)



## A fairer way of calculating fees

AMPS is committed to best representing our members, and aims to deliver a range of key benefits across a number of focus areas including lobbying, marketing, networking and publishing. We have big and exciting plans for the future but extra revenue is required in order to become the Association we know our members want us to be. As a trade association representing member companies of all shapes and sizes AMPS have decided that a one-size fits all approach to membership fees isn't the best way forward. Therefore, and in common with many other trade associations, membership fees from 2014 will be calculated according to turnover. Under the new system smaller companies are likely to pay less than they do currently, with larger companies subject to a modest increase.

Tier	Turnover in Millions £	Annual Membership Fee £/pa
1	over 450	3000
2	150 to 450	2800
3	50 to 149	2500
4	20 to 49	2000
5	5 to 19	1750
6	1 to 5	1500
7	less than 1	750

If you have any queries regarding the new structure, or are unsure regarding your company's tier, please contact Angela Barnatt at [ab@amps.org.uk](mailto:ab@amps.org.uk) or 01733 314767.

## The fantastic six – power generation in the news

Busy? We do the hard work for you by rounding up the stories and links we think you need to see.

A Power Engineering International article analysing recent US data suggests the future for diesel and gas generators remains bright.

[www.powerengineeringint.com/articles/print/volume-21/issue-8/features/diesel-innovates-as-gas-closes-gap.html](http://www.powerengineeringint.com/articles/print/volume-21/issue-8/features/diesel-innovates-as-gas-closes-gap.html)



While the markets themselves remain healthy the level of competition is fierce and growing, as International Rental News examines.

[www.khl.com/magazines/international-rental-news/detail/item87627/Generator-X:IRN-on-the-growing-competition-in-the-mobile-generator-market](http://www.khl.com/magazines/international-rental-news/detail/item87627/Generator-X:IRN-on-the-growing-competition-in-the-mobile-generator-market)



Rupert Soames, Chief Executive at Aggreko, discusses business, critical applications and family in this BBC interview.

[www.bbc.co.uk/news/business-23794112](http://www.bbc.co.uk/news/business-23794112)



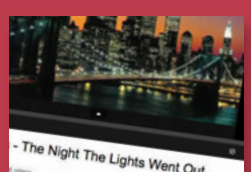
With fear of UK power shortages explored in this issue it's worth remembering that dozens of countries suffer blackouts on a regular basis. This video and article examines how a blackout recently left most of Venezuela without power.

[www.bbc.co.uk/news/world-latin-america-23954514](http://www.bbc.co.uk/news/world-latin-america-23954514)



While blackouts potentially put lives at stake – and the cost to the economy can be crippling – an outage isn't all bad news, as this 1977 disco classic inspired by a New York power failure testifies.

[www.youtube.com/watch?v=I80MhaI4IPI](http://www.youtube.com/watch?v=I80MhaI4IPI)



Nick Butler of the Financial Times explores the challenges facing the German utilities sector, and the potential implications for the rest of Europe.

[blogs.ft.com/nick-butler/2013/09/11/germany-power-and-uncertainty-ahead/](http://blogs.ft.com/nick-butler/2013/09/11/germany-power-and-uncertainty-ahead/)





# Economic update

By Chris Evans

**The economy is now growing slowly with official statistics for GDP in the second quarter having been raised to indicate a 0.7% improvement over Q1. Several forecasting units have also raised their views with the British Chambers of Commerce having pushed their projection for 2013 growth to 1.3% from a previous stab at 0.9%. The following chart shows how independent forecasters have raised their average estimates over recent months.**

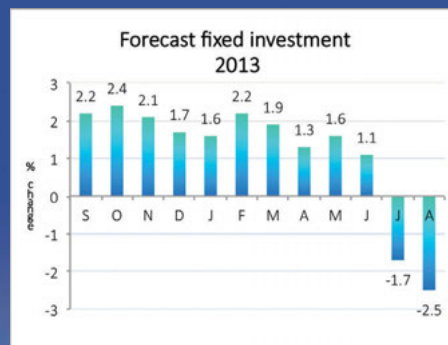
Survey data has suggested the UK economy is picking up rapidly. The UK Purchasing Managers' Index for services increased further in August, to 60.5. This represents the strongest growth in the sector since December 2006. The manufacturing PMI series rose to a two-and-a-half year high of 57.2, indicating the strongest growth in output and new orders since 1994.

*Exports in the first half were down a disturbing 21% with declining sales seen in all markets except North America – What is happening to explain these results?*



ONS data is less impressive. Output rose for the second month in a row, but only by 0.2% m/m in July, and only 6 of the 13 sub-sectors saw growth. Further, July showed the largest trade deficit in goods and services this year (£3.1bn) with a huge 16% m/m fall in goods exports to non-EU countries when such destinations are thought to hold the key to trade prospects.

The biggest disappointments lie in the lack of progress in investment and in net trade. The independent forecasts show graphically how sharply they have adjusted their views in a negative direction.

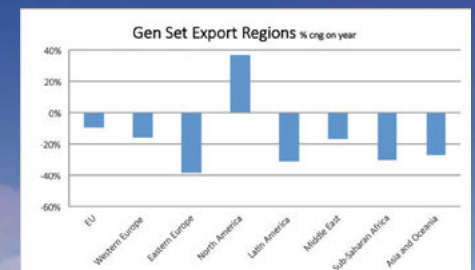


Nor have we seen the benefit to trade that a weak currency should in principle provide – granted demand levels are low especially in our traditional export markets.

The trade in power generator kits has been a great success for many years but the trends this year are quite disturbing, if to some extent inevitable with the transfer of production to the Far East. Exports in the first half year were 21% below a year earlier at £516m whereas imports actually rose by 9% to £65m. Thus there is still a very positive balance of trade – £451m for the half year – but it is diminishing.

Exports to all regions showed decline on this time last year with the exception of North America where the economic tide appears to be turning.

Exports in the first half were down a disturbing 21% with declining sales seen in all markets except North America – What is happening to explain these results?



# Defending the 'weirdest scheme yet' – Why STOR makes sense

**Amidst warnings of future blackouts – and with energy prices set to become a key election issue – the spotlight is shining on power generation, says Thomas Harrington**





**Recent articles by Christopher Booker in The Telegraph (3rd August) and Richard North in the Daily Mail (14th July) have been scathing in their attacks on STOR (Short Term Operating Reserve) and associated wind power, referring to the use of diesel generators within these systems as “insane”, “dirty” and “without question... one of the most sure-fire moneymaking wheezes of our time”.**

In this article AMPS responds to the claims, arguing that while there is a legitimate issue with the reliability and stability of wind power STOR supplied by diesel generating-sets is an attractive solution to the ‘wind problem’ (though wind balancing is only a small part of its role); ultimately good value for consumers and, in the way the STOR system is actually deployed, forms a legitimate and necessary part of the UK’s lower emissions energy strategy.

The UK, in common with many other countries, has signed up to a second phase of the Kyoto protocol – a commitment to reduce CO<sub>2</sub> by 34% by 2020 (as well as other greenhouse emissions). Part of the government strategy to achieve this goal has been to fast-track wind power into the energy mix through favourable legislation and incentives. In principle, the benefits of renewables are clear, but with wind power there exists a problem, namely, what to do when the wind doesn’t blow?

The margin to cover energy shortfalls when demand outstrips supply – whether caused by unplanned outages, a demand forecast error

or lack of wind – needs to be responsive, stable and efficient. Coal and oil-fired power stations, regardless of emissions, are inappropriate for providing this spinning reserve as they need warming before they can contribute, typically for up to 12 hours. Diesel generators, whether as embedded standby generators or as purpose-built STOR sites, can respond almost instantly and have become a valuable tool to ensure the nation’s lights stay on.

“STOR ensures supply is maintained in the short term,” says Tim Emrich, Chief Operating Officer at UK Power Reserve. “This allows National Grid the time to bring on the more economical capacity in response to whatever issue(s) are affecting supply. STOR is not just a backup for renewables [as the article implies]: The most common triggers requiring STOR are unplanned outages on the larger generation fleet (nuclear, coal, gas, etc.) or demand forecast errors.”

*Diesel generators are far cheaper than alternative coal or oil-fired power stations would be in the same situation.*

The Telegraph claims that “owners of diesel generators are being incentivised with offers of astronomical fees to make them available to the grid – subsidies equivalent to up to 12 times the going rate for conventional electricity, and even, on very rare occasions, up to £15,000 per megawatt hour (MWh), or 300 times the normal rate of £50 per MWh.” This data is false but even if true, Booker commits a basic category error. STOR is more expensive than conventional electricity per MWh, but STOR is in place only to provide near-instant margin and act as insurance for the main power sources. As the National Grid itself states, “[the grid] requires access to extra power in the form of either generation or demand reduction during certain periods of the day in order to manage situations where actual demand is greater than forecast demand and/or unforeseen generation

unavailability.” Diesel generators are far cheaper than alternative coal or oil-fired power stations would be in the same situation; the alternative would involve keeping power plants running on warm standby, or have them contributing the shortfall inefficiently as a tiny percentage of their overall capacity. The Telegraph, as Dave Hartley of Deep Sea Electronics points out, “have also completely ignored the potential cost of investing in new power stations and sub-stations as a comparison, which, without STOR would be required.”





*With several large nuclear, oil and gas plants already decommissioned or planned for closure over the coming years, the need for flexible margin is great.*

Even more damaging to his article, the figures given by Booker are (at best) misleading. The most recent set of data for 2013/2014 – provided by the National Grid in their official STOR information report – shows that for available (but unused) power the

amounts paid varied from £0.80MWh to a max of £11.50MWh (depending on season, flexibility and technical response capability). For power actually contributed the cost ranged from £90MWh to £350MWh, with no

sign within the data of an actual paid figure close to the £15,000MWh cited as possible by Booker (and from which he makes the spurious claim that STOR is 300 times more expensive than usual power). As Dr. Alastair Martin, Chief Strategy Officer at STOR aggregator Flexitricity notes: “Even at its peak, STOR came nowhere near the value quoted. Prices have declined sharply, and even though we expect a slow recovery we don’t see them going anywhere near those levels.”

In the Telegraph article STOR is also attacked as benefiting from significant subsidies. Tim Emrich disputes this claim:

“STOR is not subsidised, nor does the government provide any incentives or payments to the STOR participants. The STOR market is exactly that – a market – that is procured by competitive tender by the National Grid. This market has seen a significant amount of competition in recent years and this in turn has depressed prices – a true reflection of elastic prices in a demand and supply driven marketplace.”

The tariffs are paid by the National Grid and subject to fluctuation according to a number of additional factors including season and technical response time capability.

The National Grid openly admits that the UK has a problem with low margin: The recently released OFGEM *Electricity Capacity Assessment Report 2013* envisaged a scenario where de-rated margins are lower than 2% in 2015/16, with the threat of blackouts possible. With several large nuclear, oil and gas plants already decommissioned or planned for closure over the coming years, the need for flexible margin is great. And with the cost of a national blackout(s) certainly far more expensive than the cost of STOR contingency you might expect ‘over-generous’ terms of the kind Booker claims and lambasts. However, through analysing the available data this simply doesn’t seem to be the case. Of course, the National Grid needs to pay worthwhile STOR prices in order to secure valuable margin, but STOR contributors have to make a significant commitment of resources in order to be included in the scheme. The minimum requirements specified are:

- Offer a minimum of 3MW generation or steady demand reduction (this can be aggregated)
- Maximum Response Time for delivery of 240 minutes following instruction from National Grid, although this is typically contracted for 20 minutes or less
- Ability to deliver the Contracted MW for a continuous period of not less than 2 hours
- Have a Recovery Period after provision of Reserve of not more than 1,200 minutes
- Be able to deliver at least 3 times per week

Diesel STOR providers also have to invest in generating-set technology that can comply with complicated and stringent grid codes (currently G59/2), as well as pay for assessment, commissioning, installation and maintenance. Even then, to be included on the scheme potential contributors must go through a tendering that the National Grid describes as “competitive and heavily subscribed”. Flexitricity has direct experience of the process:

“STOR has quite rigid requirements,” says Dr. Martin. “There have been many occasions when we have identified potential flexible load but been unable to bring it into STOR. These rigid requirements are a result of its function to help deal with fast-moving events such as power station failures.”

The National Grid report data corroborates this, confirming that a large percentage of those tendering for STOR are actually rejected. Booker claims a firm involved refers themselves to STOR as “money for nothing”, but it’s hard to see how this is plausible given the costs and risks involved. Even if a scheme is not constantly contributing electricity to the







grid (which is not the aim) a hefty investment has been made for equipment to be available as insurance, and nobody thinks lifeboats are a waste of money when not used.

Despite all these costs an AMPS member I spoke to seemed sympathetic to Booker's point that "Initially, this 'short-term operating reserve' only envisaged relying on existing standby generators." Does the very fact purpose-built STOR sites exist highlight the National Grid has gotten its sums wrong?

From an emissions perspective there is a clear advantage in using only those generating sets that have a function independently of STOR. "All over the country there are thousands of generators waiting in basements for the time when they might be needed," says Dave Hartley. "The beauty of using these is that they are already in place and many are connected to the grid. Collectively these generators represent many megawatts of electricity without any equipment investment required."

Standby generators can potentially go years without an emergency necessitating their operation, but to ensure reliability such sets still require regular load-testing, often using load-banks. This means there are CO<sub>2</sub> emissions expelled during testing without any energy going into the grid. In these scenarios, standby systems incorporated into the STOR scheme can contribute valuable power to the nation's power while simultaneously receiving the regular workout needed to optimise performance and reliability, without separate testing.

The drawback to this apparent win-win solution is that many users of standby generators do not want to be involved in a scheme where there is even the smallest chance supplying into the grid might interrupt their own ability to provide backup power in an emergency; the inconvenience of the tendering process and commissioning might also put some companies with suitable equipment off; others may simply be unaware of the scheme's potential, (although Richard

North's assertion in The Daily Mail that the STOR scheme is deliberately 'secret' is the most absurd claim of all).

Given the need for STOR power it appears both inevitable and necessary that a certain number of designated STOR schemes are built in order to guarantee the lights are kept on. But the newest way for owners of generating equipment to contribute to STOR – and one that could offer a smart solution to the demand problem – is through STOR aggregation.

Until recently a STOR provider typically needed 3MW of power to be considered for the STOR scheme. Recognising that many equipment owners do not have this capability, a number of companies began offering STOR 'aggregation' which involves developing and operating multiple sites (STOR Sub Sites) and offering these to National Grid as single STOR site. The aggregator becomes responsible for the framework agreement; availability declarations; metering and monitoring, tendering and settlements – and it is the aggregator, not the equipment owner, who deals with the National Grid and receives payment (before forwarding a negotiated payment on to the equipment owner). The STOR aggregator uses their expertise to enable non-experts a hassle-free way to receive greater value from their equipment (and benefit the grid) without the capacity, time and resources the STOR scheme previously required. This system potentially represents an efficient way of using existing infrastructure to provide flexible margin and, as discussed in relation to standby generators, obviates the need for regular load-testing (and eliminates the attendant emissions).

Of course, diesel generators do release some emissions when in use. Booker attacks the equipment on this front, claiming "those diesel generators chuck out almost as much, per unit, of that supposedly polluting CO<sub>2</sub> as any of the coal-fired power stations our politicians

want to see taxed and regulated out of existence." But again, his attack is misguided. Diesel generators, unlike the alternatives, burn no fossil-fuels when not in use (no warm standby); unlike coal-fired power plants they are not being used as a primary contributor of energy but as a backup for windpower (which contribute no direct emissions) and are deployed on a much smaller scale. As Piers Rendell, Divisional Director – Engine Control at IPU Group notes: "Unlike the old fashioned power stations that were operated as a spinning reserve, the modern STOR sites are only asked to run when required for short periods, lessening the environmental impact for all concerned."

If all this hasn't left you convinced diesel generators are not "insane" it is also the case that new technologies – partly facilitated by innovation from within our membership –

*Standby generators can potentially go years without an emergency necessitating their operation, but to ensure reliability such sets still require regular load-testing.*

continue to improve efficiency so that harmful emissions are minimised: "Modern generators using Tier 4 engines can produce energy so efficiently they are now seen as a viable green alternative," says Dave

Hartley. "And because they offer highly reliable solutions should no longer be seen as a dirty or poor option." Piers agrees: "New engines comply with the latest emissions standards. A coal-fired power plant emits approx. 850kg of CO<sub>2</sub> per MWh: A Diesel generating-set used for STOR emits about 3.5kg per MWh."

With capacity margin lowering – and genuine risks of blackouts increasing – diesel generators are likely to feature more prominently in the news and national consciousness over the coming months and years. Dave Hartley regards The Telegraph article as "understandable to a degree, but the criticism stems from a poor understanding of the problem as a whole." AMPS have an obligation to ensure the increasingly valuable roles our members play in securing Britain's power is not undermined by sloppy journalism, but are understood by the non-expert, and celebrated for what they are.

#### Links to further information

- [www.telegraph.co.uk/earth/energy/10220083/We-could-soon-be-paying-billions-for-this-wind-back-up.html](http://www.telegraph.co.uk/earth/energy/10220083/We-could-soon-be-paying-billions-for-this-wind-back-up.html)
- [www.dailymail.co.uk/news/article-2362762/The-dirty-secret-Britains-power-madness-Polluting-diesel-generators-built-secret-foreign-companies-kick-theres-wind-turbines-insane-true-eco-scandals.html](http://www.dailymail.co.uk/news/article-2362762/The-dirty-secret-Britains-power-madness-Polluting-diesel-generators-built-secret-foreign-companies-kick-theres-wind-turbines-insane-true-eco-scandals.html)
- [www.ofgem.gov.uk/ofgem-publications/75232/electricity-capacity-assessment-report-2013.pdf](http://www.ofgem.gov.uk/ofgem-publications/75232/electricity-capacity-assessment-report-2013.pdf)

# The Expert Panel – STOR

**STOR has been making the news for the wrong reasons over the past few months. Following the AMPS article we ask an expert panel for their views on STOR, wind power and the future of the UK's energy infrastructure.**

**Dr. Alistair Martin**

Founder & Chief Strategy Officer, Flexitricity

**Tim Emrich**

Chief Operating Officer, UK Power Reserve

**Adam Pearce**

Product Manager (Fuel), Parker Hannifin, Racor Filter Division Europe.

**Phil Starr**

Director, Progress Group

**Dave Hartley**

Technical Director, Deep Sea Electronics

**Piers Rendell**

Divisional Director – Engine Control, IPU Group

**Roger Lane-Nott**

AMPS Director General

## I. Do you think criticism of STOR in The Telegraph article is understandable?

**Tim Emrich:** The article refers to STOR only as a backup for renewables such as wind farms. Although STOR does support renewables this is not its primary focus. STOR is a service that National Grid procures predominantly to provide an additional service or 'tool' to use for short durations, and is one of several tools the National Grid is able to use in response to issues on the UK electricity network. STOR ensures supply is maintained in the short term, allowing National Grid the time it needs to bring on the more economical capacity in response to any issues affecting supply on the UK electricity network. It fills the time gap when National Grid cannot meet demand before the more economical backup generation can begin. The article also exaggerates the costs of STOR. At most, STOR is a £100m market and recent developments within the STOR market are likely to reduce not increase its overall costs. Overall, it's the most economical way to provide security of energy supply service to the UK.

**Dr. Alistair Martin:** The numbers quoted are entirely unfamiliar to STOR participants. Even at its peak, STOR came nowhere near the value quoted. Prices declined sharply over the past three years and are presently at historically low levels. We expect that prices will slowly recover, but we don't see them going anywhere near the levels quoted.

**Phil Starr:** It is certainly understandable from a layman perspective. The STOR scheme and the reasons it needs to exist are not well understood outside the power industry and on the face of it there does seem to be a lot of new generators sitting idle around the UK.

**Dave Hartley:** It's understandable to a degree but the criticism stems from a poor understanding of the problem as a whole. Demand for electricity is increasing year on year – it's a global problem not just related to the UK. Everyone expects to be able to have electricity as and when they need it and certainly in the UK this is very much taken for granted as grid failures, whilst not unheard of, are not a regular occurrence (unlike other countries). However, with increasing demand putting pressure on grid resources, it is inevitable that the existing supply network will not be able to continue to meet the UK's requirements. If we want to 'keep the lights on' we must look at ways of stabilising the grid and making up the shortfalls between supply and demand of power. One way of making up this shortfall is to harness some 'ready made' and instantly available power from generators.

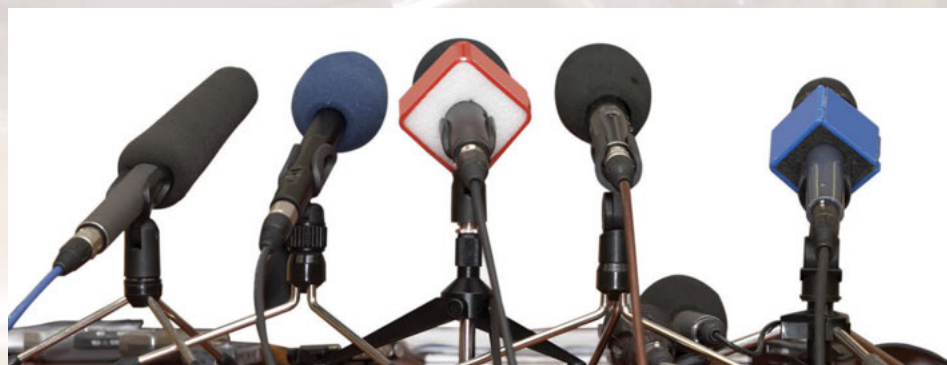
**Piers Rendell:** The article paints a picture of dirty old Diesel engines pumping out CO2 emissions equivalent to those put out by a coal fired power station. This is not the case as the new engines comply with the latest

emissions standards. A coal-fired power plant emits approx 850kg of CO2 per MWh while a diesel generating-set used for STOR application emits about 3.5kg per MWh. Also, the diesel generating-sets are only called to run when required, which is not consistently. A coal-fired power plant would run 24/7, whether the power is required for all that period or not. So to use the argument that CO2 is equivalent is nonsense.

As for the providers of dedicated STOR sites they are investing considerable sums to provide a solution that can be implemented in the shortest possible period, for a problem that exists due to the unreliable nature of renewables. The sums paid by the National Grid reflect the critical nature of maintaining power and grid stability compared to the costs if we had a grid collapse situation, which would be huge.

**Adam Pearce:** Criticism of STOR providers, specifically relating to the 'money-making scheme' comments, is largely unjustified, especially when you consider the current rates versus fuel and capital equipment costs. It's arguably difficult for providers to make a standalone business case for providing STOR capabilities – only when coupled with their own needs could the investments be properly justified. Providers might need to start looking at natural gas powered equipment, used in conjunction with a Combined Heat Power (CHP) setup.

**Roger Lane-Nott:** This is an extraordinary and unfounded attack on diesel generator providers. It is perfectly reasonable for generator suppliers to respond to requests for power; indeed there is a strong argument that without diesel generators there would be a massive hole in the supply of energy for countless businesses, hospitals, utilities, railways and military – as well as in the backup for wind power.





## 2. Is STOR likely to be a stopgap measure, or do diesel generators represent a longer-term solution?

**AM:** STOR is not new. It is now in its seventh year, and prior to that, a service called Standing Reserve fulfilled much the same role for many years. The volume procured in STOR has not changed much over that timescale; it has certainly seen nothing like the growth which has occurred in wind and solar generation, and such growth as there has been has resulted from more providers entering the market, making it a more economic option for National Grid. STOR will remain part of the energy mix. Other services or market arrangements will be conceived which will help to balance wind and solar, and they will not be STOR as we presently know it.

**TE:** STOR provides an essential service to the National Grid and plays an important part in maintaining security of supply. However, one size does not fit all and it does not provide the right solution for all scenarios. The generation mix is changing rapidly over the coming decade and National Grid is looking at its 'toolbox' of services including STOR to determine the best set of tools to meet the challenges of balancing UK energy demand and supply as the generation mix evolves to a renewable future. Electricity Market Reform (EMR) is also driving significant changes and one such change could be a Capacity Market (CM) which can provide additional capacity

at times of system stress. Given the challenges National Grid face in the coming period STOR will still remain an important balancing service and the overall requirement for STOR will grow. Although difficult to pinpoint an exact figure, indicative forecasts suggest the STOR market could double in size between now and 2025.

**RLN:** I am of the view that STOR will not be a stopgap but will continue to be a back up to both main stream and renewables for years to come. The main requirement for power by business is to support the enormous growth and reliance on IT and no one can consider working without a reliable IT service and that means reliable power!

**PS:** Diesel generators for STOR are both cheap to buy and quick to install compared to other types of electricity generation. It is a very efficient means of balancing the National Grid with its variable wind generation component and provides a reliable and responsive backup to take the strain and keep the lights on. There is also the added benefit of providing a valuable backup in the event of other non-wind related power events. Whether this flexible and efficient means of National Grid support grows will be largely down to sufficient long-term reward being

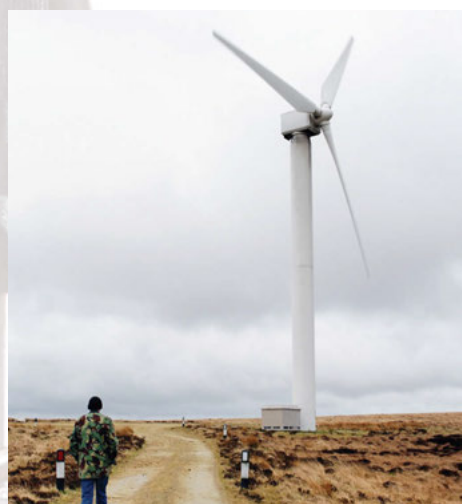
available to private investors for finding suitable sites to build on, and then installing and operating the sites thereafter.

**AP:** I believe STOR will be a stopgap solution, as providers will ultimately need to be led by their own needs, with the STOR activity as a secondary priority. The power supply company's needs will ultimately require it to be under keener, more dedicated and direct control so as not to have power outages in the future.

**PR:** It is difficult to say, but with the drive towards renewables our National Grid network will have issues to face that require some form of relatively instant additional power that can be brought online as and where required. Other issues such as frequency and voltage fluctuations – which are already affecting our network – need to be addressed and the STOR sites may offer a solution that has less impact than building more conventional large power stations.



## 3. What are your views on wind power? Do you think it is a valuable contributor to the energy mix?



**AM:** Wind is a very effective fuel-saver. It's not a great capacity-saver, but very few have advocated it as such. With large-scale growth in wind and other renewable technologies, we still need plenty of power stations, but we don't need to burn as much fuel in them. Reducing the nation's annual fuel bill by the scale achieved by renewables so far is an economic and environmental victory. For wind

to deliver its full potential, progress in other technology areas is required – energy storage, interconnection and greater diversity in the renewable and low carbon resource base – for example, growth in tidal and wave power, and more district heating schemes could all help. Despite this room for improvement, the progress achieved so far is something that the UK should be extremely proud of.

**DH:** Wind energy is fine as a contributor to the energy mix but the most plausible system would be one that uses energy from a range of different sources. Building-in flexibility would lead to a more robust system.

**PS:** My view is it's expensive and unreliable. The fact is that when it starts and stops literally changes like the wind! Whilst it uses a clean and free fuel this currently overrides the inconvenience of having a power source that is necessarily linked to wind speed rather than demand: Cold, still winter mornings see huge demand and stationary wind turbines. I believe there is considerable public ignorance on just how relatively little electrical power these huge wind turbines actually produce for their size.

**RLN:** One of the real gurus of renewable energy is Professor Fells at Newcastle University. He is a real supporter but even he admits that if everything works well then wind power will only ever produce around 12% of the power we need. So the question is, should we bother?

**TE:** Wind is one of the most prevalent renewables sources of energy the UK can access and if the UK wants to benefit from cleaner, greener energy sources then wind has to play its part in the generation mix. New energy capacity has a significant cost – and wind turbines are no exception. The UK faces a general capacity shortfall in the coming years and this requires significant investment to bring online new generation capacity. There is currently a golden opportunity to redesign the generation mix and bring about a more balanced supply of renewable energy with our traditional fossil fuelled thermal generation fleet. The ultimate objective is to attract renewable capacity investment without the public subsidies currently in place.



#### 4. The Telegraph article claims subsidies are too generous. What do you think?

**TE:** STOR is not subsidised, nor does the government provide any incentives or payments to the STOR market participants. The STOR market is exactly that – a market – that is procured by competitive tender by National Grid. The market has seen a significant amount of competition in recent years and this in turn has depressed prices – a true reflection of elastic prices in a demand and supply driven market.

**AM:** The government doesn't pay for STOR nor does it set prices. It never has. STOR is a commercial, tendered service, and the market sets prices in thrice-yearly auctions. Prices are as low as they have been since STOR took over from Standing Reserve seven years ago, largely due to the recession and other shifts in energy commodity prices. The government has no role in STOR.

**RLN:** I think prices are about right at present but I suspect that there will be a lot of discussion and argument over the next few years.



#### 5. How is product or service innovation playing a role within STOR?

**DH:** The control solutions offered by DSE can help to balance the complex power quality issues associated with renewable energy sources. We have a range of flexible generating-set controls that offer mains monitoring, synchronising, synch lock, demand control, sophisticated protections and remote communication. We also offer Mains Decoupling relays that incorporate high levels of mains monitoring and protection. We believe our products are ready now to meet future grid code requirements.

**AP:** Filtration equipment from Parker Racor makes diesel and gas generators within cost-sensitive applications like STOR run more efficiently and reliably, optimising performance and reducing wear. Fuel degradation – especially with the recent increases of diesel bio-content – is a major issue for all our customers and we can ensure that their fuel, even when left standing for long periods, is tested, optimised and fit for purpose.

**PS:** The FG Wilson generators Progress Group use in STOR schemes are all manufactured in the UK, and are at least EU Stage II emission compliant. The engines are designed for power generation, they do not smoke and they are housed in acoustic

enclosures. The picture painted in certain press articles recently of 'dirty old, foreign truck engines' is far removed from the reality of the equipment we use.

**PR:** IPU Group provide excellent control solutions for diesel generating sets to the STOR market. Our ComAp controllers allow numbers of generating sets to be efficiently ramped on and off the electrical network as required by the National Grid. We also provide monitoring software for STOR sites, allowing the operators to maintain the requested power of the Grid while ensuring the generating sets are operated at their most efficient levels.

IPU Group also offers products that extend oil life through monitoring and cleaning, optimising performance and reducing the impact of oil waste from sites.

**TE:** UK Power Reserve has designed, developed and built an innovative system that provides real time monitoring and control of our nationwide network of power stations from our central control room in Solihull. This system has enabled us to construct a central control Virtual Power Station made up of our real physical generators across the country.



Each site is capable of operating autonomously and is equipped with independent lines of communication, providing our highly trained control room operators with real time information and stats on performance and asset health. Our Virtual Power Station is tied directly into a Field Service Engineer tracking system allowing the control room to assign individual engineers to sites based on location and response time. This innovation has increased efficiency of our STOR service, enabling us to add more value to National Grid and be a more effective asset in ensuring security of supply.

**AM:** Flexitricity's core operational system allows many types of distributed generation or flexible load at industrial and commercial sites to participate in STOR, while protecting the sites' core business activities, minimising impact on site staff, and providing a quality service to National Grid. We use the same system – with modifications – for our other services, which include Frontline, services for distribution network operators, and winter peak load reduction. We never stop innovating, because the market never stops changing. STOR is only one of many roles which can be fulfilled by distributed generators and flexible load.



## 6. Finally, if you were David Cameron, how would you improve the UK's energy infrastructure?

**DH:** The STOR initiative is of key importance to the power quality and security of our UK electricity network, however many generator owners are not aware of the initiative. It may be prudent for Government to highlight the scheme nationally to allow generator owners to participate if they feel the scheme is right for them.

**PS:** The Government should provide a clear long term strategy that enables all stakeholders to see their stance in all aspects of electricity generation including environmental policy, fuel options and

subsidies. The security to enable power station investment is needed now in order to build for the future secure in the knowledge investments will be viable in the long-term.

**AP:** I'd install localised CNG (Compressed Natural Gas) based CHP generators to be added to larger schools and hospitals, set up specifically to provide STOR capacity alongside power and heat.

**TE:** There is currently a golden opportunity to redesign the Generation mix. Fundamentally, UK energy infrastructure needs more

competition if it is to be more cost-effective and robust. Mandating clear business separation by removing vertical integration of energy Suppliers and generators and limiting the generation capacity any one entity can own and operate would help bring more suppliers into the market.

**AM:** The capacity market, part of DECC's Electricity Market Reform project, stands on the cusp of delivering a more cost-effective and efficient infrastructure. The success or failure of the capacity market will depend on the detail.



*Disclaimer: All views expressed in this article are the respondent's own and do not necessarily represent those of AMPS or their respective company.*

### Contributor profiles

**Flexitricity** is a commercial aggregation service provider working directly with the National Grid. They have created what claims to be the first, largest and most advanced smart grid system in the UK and provide STOR for the National Grid to keep the electricity system stable during times of stress.

[www.flexitricity.com](http://www.flexitricity.com)

Founded in 2010, **UK Power Reserve** has a portfolio of flexible power plants and maintains security of supply for the UK by supporting the National Grid under its STOR service. UK Power reserve owns and operates over 100MW of generation capacity within the STOR market.

[www.ukpowerreserve.com](http://www.ukpowerreserve.com)

**Deep Sea Electronics** is one of the world's leading suppliers of generator controls and provides a range of products that meet the functionality and communication requirements of the STOR scheme.

[www.deepseapl.com](http://www.deepseapl.com)

**Parker Hannifin Racor Division** is a global leader in filtration products for all diesel and natural gas engine based applications.

[www.parker.com/racor](http://www.parker.com/racor)

**Progress Group** have supplied and installed well over 300MW of STOR generation utilising new diesel generators manufactured in the UK.

[www.progress-group.com](http://www.progress-group.com)

**IPU Group** provide a wide array of services and products for the power generation sector. For STOR in particular they provide control solutions, site monitoring software and fuel filtration products.

[www.ipu.co.uk](http://www.ipu.co.uk)

# Could blackouts lead to a starring role for diesel generators?

**Those with both power and a television on Monday 13th September may have seen Blackout, Channel 4's new feature length docu-drama that envisioned a terrifying Britain without mains power – the grid having been shutdown by a cyber-attack. This bleak scenario would've been even bleaker without emergency diesel generators supplying power to key infrastructure such as the government, hospitals and media services. Here we discuss the situations depicted in the programme by asking how likely are extended blackouts, and what can the general public do in preparation?**

One important point to note is that the programme scenario is certainly grounded in reality. In the lead up to the London Olympic games there was the suggestion, "of a credible attack on the electricity infrastructure supporting the Games," according to Olympic cyber security head Oliver Hoare. And with the National Grid largely controlled by computers it's certainly feasible a cyber-attack could disrupt power generation. Wisely then, this is an area where investment in defence is being focused. But blackouts can have a number of causes and the grid arguably faces even greater challenges that have many experts predicting problems over the coming years. Recent precedents can certainly be found in other countries:

- **US & Canada, 2003** – Two-day blackout affecting 55 million people across North Eastern, Mid Western areas of the US as well as the Canadian province of Ontario. The cause was a software bug.
- **India, 2012** – Another two day blackout that affected 620 million people – half of India and 9% of the world's population. This time it was caused by a failure to balance supply and demand.
- **London, 2003** – Many will remember the blackout that affected rush-hour London in 2003. It was caused by a technical failure that led to a domino effect.

Are blackouts likely in the UK? With large coal, oil and nuclear stations closed or planned for decommissioning the National Grid will possess only 2% energy margin by 2015/16, according to one of their own scenarios. And the Government's Statutory Security of Supply Report says there are real likelihoods of disconnections, with the risks rising from 1 in 3,300 a year this winter to 1 in 12 a year in 2015/16.

"People don't consider where their power comes from, and consider even less that they could mitigate the threat of a blackout with a relatively small generator," says Robert Beebee, chairman of AMPS. "The potentially lifesaving and business-saving role of a generator is something the public are largely unaware of. I think the number of diesel generating sets would explode if people understood the potential threat of blackouts due from 2015 onwards."

Viewers of the programme went on to Twitter to share their views. @markgloverOSH mused, "it makes me wonder how much we are really prepared for such an event." @cupofteague tweeted: "Shouldn't have watched #Blackout now. I just want to go out and buy generators and tinned beans." Are these reactions justified? Is the show guilty of scaremongering? Would Britain have the diesel generator infrastructure to cope in an extended blackout?

Mr. Beebee thinks there are reasons for concern:

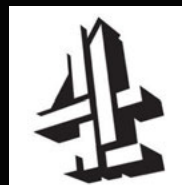
"I think it's valuable the programme has made people think about these issues. The backup infrastructure is not robust since it has never really been considered as an integrated item. Work is being done in this area, but if people nonchalantly think they could hire a rental generator to come to the rescue once the lights are out they'd be in for a shock. Mobilising and fuelling them in sufficient quantity to make a real difference would be impossible."

AMPS are already working alongside the National Grid and the Government's Department of Energy & Climate Change to improve energy security and prepare for emergency scenarios. So what does Mr. Beebee think are the right steps the country should take?

"For diesel generators I think we need to develop short and long-term contingency planning. Short-term, I think we need a strategy for allocating the available hire fleet to strategic locations in the event of an emergency: If suitable generators were identified now it would make the processes far smoother in the event. Longer term, with grid integration of diesel generators standardised, generators that provide backup to businesses – such as banks and data centres – should actually be subsidised with the proviso that power be available to the government in the event of a national emergency."

Missed Blackout? Watch it here:

**[www.channel4.com/programmes/blackout/4od](http://www.channel4.com/programmes/blackout/4od)**



## Further references

- [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/65643/7101-energy-security-strategy.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65643/7101-energy-security-strategy.pdf)
- [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/79195/RevElectSupply.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/79195/RevElectSupply.pdf)
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## New Members

### Workspace Technology

Workspace Technology, the West Midlands based Data Centre, Server Room and Power Generation design and build specialist, are the latest welcome addition to AMPS.

"We provide our customers with a one-stop approach to 'Workspace Technology,' providing a competitive advantage through the design and implementation of flexible and reliable solutions for data centres, building systems, interior solutions and power generation," explains Head of Marketing, Richard Warren.

The company has grown and now we've developed our own in-house Power Generation Division. Richard Cheal, Head of Division, had a good relationship with AMPS at his previous company and stressed the importance of membership accreditation in promoting the high quality of our bespoke diesel generators and technical capability of our work."

"We aim to gain further recognition within the backup power and power generation markets by providing the highest levels of quality and service. Being a member of AMPS offers our clients confidence and reassurance with the solutions and services that we offer."

[www.workspace-technology.com](http://www.workspace-technology.com)



### Goodwolfe Energy

AMPS are delighted that Goodwolfe Energy have joined the association. The Southend based company specialises in providing bespoke lithium battery solutions and Lucy Bennett, Energy Sales Support, sees ties with the generator sector as increasingly important:

"With a changing technological landscape and the need for more renewable and economical power solutions we've formed many strong relationships with generator manufacturers, helping them develop and install hybrid solutions. The majority of our customers are in the UK and Europe, although we can and have supported projects beyond these territories.

"We saw AMPS mentioned in a Telegraph article and identified the association as the right vehicle to share our experience, build new partnerships and stay in touch with fast-moving developments. AMPS provides a central hub for different businesses within the industry to meet collaborate and discuss. Importantly, AMPS also have influence promoting the adoption of consistent standards."

[www.goodwolfe.com](http://www.goodwolfe.com)



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# Dale Power Solutions employee wins Apprentice of the Year award



**Dale Power Solutions Natasha Pitts has been named as one of Yorkshire and the Humber's best apprentices in the regional final of the National Apprenticeship Awards 2013.**

The highly commended entries and winners were announced at a high profile awards ceremony organised by the National Apprenticeship Service, which was held at the Leeds College of Music on the 10th September 2013.

Natasha won the highly prestigious National Apprenticeship Awards Higher Apprentice of the year (Yorkshire & Humberside region). Natasha completed her Advanced Apprenticeship 2 years early and has progressed onto Dale Power Solutions Higher Apprenticeship. Natasha's Apprenticeship has helped her to become a valued team member and is seen as a star of the future and a role model to all our apprentices. This success has inspired Natasha to help others. Natasha has helped to develop training equipment for Dale Power Solutions training partner (Derwent Training) to enhance the learning experience of other apprentices. Natasha is very passionate about engineering and science and is very proud to promote engineering and the power of apprenticeships in local schools through her role as a STEM ambassador and encourages young people into stimulating, rewarding and enjoyable careers through an apprenticeship.

Dale Power Solutions offer excellent opportunities to become part of an exciting and expanding team providing businesses around the globe with secure standby power.

"I'd like to take this opportunity to congratulate Natasha Pitts from Dale Power Solutions for this superb achievement. They are a shining example of how Apprenticeships can allow employers to grow their own talent, and enable apprentices to build real careers." All the Yorkshire and the Humber winners will proceed through to a final national judging stage, and the Apprenticeship employer entries that were judged to be the very best of the best will have the additional honour of featuring in the acclaimed England's Top 100 Apprenticeship Employers list, which will be produced by NAS in partnership with City & Guilds. The Top 100 Apprenticeship Employers and the national award winners will be revealed during the opening ceremony of the UK's largest national skills and careers event, The Skills Show, at the NEC in Birmingham on 14th November.

The Skills Show has City & Guilds and Edge Foundation as its premier sponsors, and is a unique celebration to inspire people with exciting opportunities in further education, skills and Apprenticeships.

Sue Price, Divisional Apprenticeship Director "I would like to wish Natasha Pitts from Dale Power Solutions the best of luck at the national final. They are a great ambassador for our region, and I'm sure their success will inspire others."

[www.dalepowersolutions.com](http://www.dalepowersolutions.com)

*[The awards] are a shining example of how apprenticeships can allow employers to grow their own talent, and enable apprentices to build real careers.*

The final year placement will be one of several potential future career paths within the business with tailored career development designed for each apprentice. We also offer Higher Apprenticeships, where qualifications are progressed through Foundation Degree and Full Degree qualifications via our training and education partners. During the four year programme our apprentices gain valuable skills and knowledge to become the future of Dale Power Solutions.

The National Apprenticeship Awards celebrate the achievements of the country's most outstanding Apprenticeship employers and their apprentices. The awards are organised by the National Apprenticeship Service, who received in excess of 1,600 high quality entrants this year.

Sue Price, Divisional Apprenticeship Director, said: "This year's awards were an exceptional showcase of the outstanding apprentices and employers we have in our region. Given the high volume and extraordinary calibre of entries we received, those who reached the regional final really are the cream of the crop."



*Natasha Pitts on winning the award*

"It has been a privilege and honour to win the Higher Apprentice of the Year award at the Yorkshire and Humber regional finals. I am very proud to win such a prestigious accolade, and I am very grateful for all the support and encouragement that I have received from my colleagues and employer Dale Power Solutions Ltd, who have helped to make every aspect of my apprenticeship a success. I hope that in winning the award I am able to be a role model for current apprentices and encourage more young people to aspire to be an apprentice within a local company."



## Bradgate involved in the largest natural gas development in Australian history

Bradgate Containers have recently shipped the first two field equipment rooms (FERs) for The Gorgon Project – a development by Chevron® of the Gorgon and Jansz-lo gas fields in Northwest Australia.

Due to their large size – each room weighs 230 tonnes and can't be transported by road – they have been installed and wired by Bradgate on a temporary site at Immingham Dock, Lincolnshire. The room pictured measures 30 metres x 12 metres x 4 metres and has been fitted out to a high specification for the site, which is also a grade A nature reserve.

Bradgate have been commissioned to provide 13 rooms in total, with each designed to meet specific blast loads. Additionally, some rooms are also H60 fire rated to protect the switchgear housed within, and/or fitted with a sophisticated air conditioning system.

[www.bradgate.co.uk](http://www.bradgate.co.uk)



## Hippo innovation from Filtertechnik

**Over 80% of all oil & fuel system failures are caused by solid particulate or water contamination. To deal with these issues Filtertechnik have engineered a filter that simultaneously removes both water and solid contaminants from a wide range of fuels and oils. Filtertechnik claim its Hippo Filter is the most versatile filter on the market, improving engine reliability and fuel economy.**

“Generators – especially those on ships and boats – can operate in hostile environments and it is not always possible to prevent water and solid particulate ingress into fuel tanks,” explains Managing Director Richard Price. “For example, on a boat moisture in the air enters the boat tanks through the breather and condenses inside the tanks. Then water collects in pockets within the fuel tank creating an ideal condition for fungus and bacteria to grow and contaminate the fuel. Engine filters and fuel lines will then start blocking with a black-grey fungus and bacteria slime. Natural surfactants produced by the fungus cause water and dirt to be suspended in the fuel and the fuel can become hazy.”

If left untreated this process can lead to engine failure, worn engine components, clogged fuel lines, a decrease in engine performance and an increase in fuel consumption. The probability of blocked injectors and fuel lines will be dramatically reduced, and filters will need changing less frequently, if a Hippo filter is deployed.

“Most standard in-line filters clean down to 20 micron efficiency. The most harmful contaminants in oil and fuel are the sub 5 micron particles, which are also the most abrasive. The Hippo filter is capable of removing harmful solid contaminants down to less than 2.8 micron.

The filter operates by taking a set volume of the oil or fuel and purifies it as it passes through the Dual Density filter media.”

The Hippo Filter can be used ‘in line’ to protect engine and fuel components or used to continually recirculate and clean a main fuel or oil tank. Solid particulate and water are simultaneously removed as the equipment is in operation.

Due to the benefits of this process, the diesel is maintained in a clean condition on a continual basis.

It is claimed that the Hippo Filter – designed and manufactured in the UK – provides unparalleled filtration capacity, which aids in reducing maintenance, keeping fuel or oils clean and prolonging equipment life.

“Already over 10,000 Hippo filters have been supplied world wide into the oil and diesel fuel markets ensuring machinery and engines are free from breakdowns due to water or particulate contamination.”

Visit [www.filtertechnik.co.uk](http://www.filtertechnik.co.uk) for more information.



## Want to get more involved?

Whether you'd like to contribute to an article, secure tickets for the AMPS Conference or know of a company that would benefit from membership, please use the contact details below to get in touch:

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# Finning's new Cat C175-20 diesel generator claims to offer greatest power output in a smaller footprint

Finning Power Systems, the UK & Ireland's sole distributor of Caterpillar engines is now offering the C175-20, a high-speed diesel generator set producing up to 4MW of power from a smaller footprint.

A single 4MW C175-20 represents a 55 percent reduction in footprint when compared with two 2MW Cat 3516B generator sets and, a 28 percent reduction when compared with a 4MW Cat 3612.

This increased power density is a key benefit for standby power for mission-critical power installations requiring larger safety loads. It can reduce the ancillary equipment required, particularly when integrated into a Finning turnkey solution containing Cat switchgear, uninterruptible power supply (UPS), control systems and noise limiting acoustics, resulting in a more cost-effective installation.

The C175-20 can also be used to generate prime power for remote work sites and in peak shaving applications.

## Reduced operated costs

The new generator reduces operating costs by extending maintenance intervals. For prime and continuous power applications, oil change intervals are every 600 hours. For standby generator sets, a three-year oil change interval option is available. Equipment overhaul periods are also extended to 22,000 for 60Hz units and 27,000 hours for 50Hz units.

## High reliability

The C175-20 package is built on the proven C175-16 platform, which has demonstrated its reliability in Cat machines and other power generation applications since 2008. A ridged engine wiring harness protects critical engine circuits from damage and redundant control wiring minimises the impact of electrical faults.

## Sustainable option

Certified to EPA Stationary Emergency Tier 2 emissions' limits for 60Hz applications the C175-20 is a sustainable option for power generation.

In addition a wide range of Cat after treatment solutions are available to reduce oxides of nitrogen (NO<sub>x</sub>), hydrocarbons and particulate matter.

The unit can also run on a range of biodiesels and is available with a low fuel consumption version to further reduce emissions and operating costs.

Improved engine breathing design allows for a greater amount of cooler air to circulate through the engine, which combined with high-pressure fuel injection enables more efficient combustions, resulting in lower fuel consumption.

The C175-20 is also available with a full range of factory designed and tested attachments or as a complete containerised package from Finning Power Systems to reduce installation costs and optimise performance.

For more information, visit  
**[www.finning.co.uk](http://www.finning.co.uk)**



# CHP/Renewable/District Heating Conference boasts excellent speakers and networking opportunities

The CHP/Renewable/District Heating Conference & Networking Event takes place on Thursday 3rd October 2013 at Prince Philip House, London. It's a key date in the energy industry calendar and brings together investors, consumers and suppliers. The event offers crucial insight into the energy issues affecting the CHP/Renewable and District Heating world today.

Details: Thursday 3rd October 2013 at the Prince Phillip House London, SW1Y 5DG. Open 9.30am – 5.00pm.

Take the opportunity to listen to high quality technical seminars as well as meet suppliers and buyers. For more information visit the Global Media Publishing website that includes details on stand reservation and event advertising.

**[www.gmp.uk.com](http://www.gmp.uk.com)**





# FG Wilson dealer wins Nigerian telecommunications contract

**JMG, an Official FG Wilson Dealer in Nigeria and one of FG Wilson's worldwide network of 370 Dealers, has been appointed by the largest mobile operator in West Africa to help power a multi-million pound modernisation of Nigeria's mobile communications network.**

The £6m project will see JMG deliver power solutions for MTN Nigeria's network upgrade. With nearly 50 years' experience of delivering world-class power solutions throughout Africa, JMG has been a partner of FG Wilson for 15 years.

Telecoms giant MTN Nigeria Communications Ltd. offers mobile network services and business solutions to more than 45 million subscribers and currently provides network coverage to almost 90% of Nigeria's land mass.

The power solution to be delivered for MTN by JMG will involve the installation of 12 high-capacity FG Wilson generator sets at MTN Switch Locations in Asaba, Lagos, Kano and Ibadan. The installation will provide Nigeria with enhanced network coverage to meet the population's increasing mobile communications capacity requirements.

The initial three-month installation project will encompass the supply and installation of six 2,000 kVA, three 1,500 kVA and three 1,250 kVA generator sets. JMG will also be supplying high voltage installations in order to conclude the project.

Commenting on the project, Mazen Jubaili, JMG Managing Director, said: "We have a proven pedigree of delivering world-class power solutions for some of the most significant projects in Nigeria and it is a strong endorsement of our work that MTN Communications has entrusted us with this contract. We look forward to commencing work on the project and bringing our renowned technical expertise to bear in overcoming any challenges presented.

*We have a proven pedigree of delivering world-class power solutions for some of the most significant projects in Nigeria*

"By working with FG Wilson to ensure the generator sets are delivered on time, we are confident the mobile communications power infrastructure upgrade will be successfully concluded to specification and on schedule to meet the urgent demand for increased mobile network services and quality of service in Nigeria.

Lynda Saint-Nwafor, Chief Technical Officer from MTN Nigeria, added: "As a leading member of Nigeria's generator industry and with an excellent reputation in their area of competence to clients, JMG is ideally positioned to deliver this power infrastructure upgrade to meet our expectations. Building on our existing relationship with JMG, this project will enable MTN to further enhance our reputation for providing a world-class cellular network across Nigeria."

Through a global network of 370 Dealers, FG Wilson serves and supports customers all over the world. With the backup of FG Wilson's power solutions teams, Dealers can meet any

power requirement, no matter how complex.

JMG, which has an existing relationship with MTN to supply 2-3,000 generator sets each year, will provide ongoing servicing and maintenance to MTN as part of the project installation.

For more information about FG Wilson visit [www.fgwilson.com](http://www.fgwilson.com)

For more information about MTN visit [www.mtn.com](http://www.mtn.com) or [www.mtnonline.com](http://www.mtnonline.com)

For more information about JMG visit [www.jmglimited.com](http://www.jmglimited.com)





# ENER-G CHP system helps distillery win award

**North British Distillery and HydroThane UK have won a major industry award for an anaerobic digestion (AD) project – developed in partnership with biogas digester specialist ENER-G.**

The Edinburgh Scotch whisky grain distillery, which supplies famous brands such as Famous Grouse and Johnnie Walker Black Label, won the AD & Biogas Award for Best integration of AD into a food and drink business.

The £6 million green technology project has reduced the distillery's carbon dioxide emissions by approximately 9,000 tonnes per year, which equates to the annual carbon saving benefits of a 7,377 acre forest, or removing 3,000 cars from the road.

The project introduced high rate anaerobic digestion to help the company provide a sustainable solution to a bottleneck in the back-end production process. This comprises a by-products plant producing Distillers Dark Grain pellets for animal feed.

Instead of investing in additional energy intensive evaporation capacity to process the liquid by-products from the distilling process, a decision was made to install an anaerobic digestion plant which, conversely, produces renewable energy in the form of biogas.

By using HydroThane's ECSB (External Circulation Sludge Bed) high rate anaerobic digestion technology to process a third of the post distillation liquor, the company has reduced the load on its existing energy

intensive evaporation plant – increasing productivity while reducing energy demand.

As a result of increasing output, the company is also able to flex between selecting either maize or wheat as the optimum raw material, dependent on cost and availability of the feedstock. Previously, wheat hadn't been a consideration because it reduced capacity.

The AD plant, which was completed in two phases, is capable of treating 27,000kg of Chemical Oxygen Demand (COD) per day and produces up to 24,000MW hours of renewable energy in the form of biogas.

A high efficiency 500kW ENER-G combined heat and power system and a 1,000kW steam boiler convert the biogas into steam and electrical energy for use on-site. These

two energy streams dramatically reduce the distillery's reliance on the use of fossil fuel based energy inputs from the national gas and power grids.

A third phase of the project, completed in 2012, consisted of the construction of a water treatment plant, designed and installed by MSE Systems. The plant uses two large aerobic bio reactors and micro-filtration membrane technology to process the effluent stream from the AD plant. This significantly improves the quality



of the post-treated water before being discharged to local sewer, enabling up to 40% of the total volume to be recycled within the distillery. This represents a considerable saving, considering that the distillery uses an average 20 million litres of water per week. It has also obviated the significant recent increases in trade effluent charges affecting many processing industries.

The distillery is working with the Bio-Fertiliser Association to have the bio-solids produced from the aerobic process accredited under PAS110.

David Rae, Managing Director of North British Distillery, said: "Our sustainability business strategy is enabling North British Distillery to make savings in terms of energy costs while at the same time reducing the environmental impact of our production process. By reducing our carbon footprint we are contributing significantly to the Scotch whisky industry's global target of sourcing 80 per cent of its energy needs from renewable sources by 2050."

Michael Lyle, Managing Director of HydroThane UK said: "HydroThane technology is giving North British Distillery considerable improvements in their energy costs and reduction in environmental emissions. The ECSB technology, a third generation anaerobic digestion process, ensures that all anaerobic odours are contained within the process, which was an essential factor in the choice of the technology by the distillery, due to its central Edinburgh location and environmental licensing conditions."

Scott Tamplin, Director of Anaerobic Digestion for ENER-G, said: "North British Distillery is leading the way in demonstrating how anaerobic digestion can reduce costs and improve sustainability in the food and drink and industry. We are proud to partner with them to ensure high efficiency in renewable energy production and biogas utilisation."

[www.northbritish.co.uk](http://www.northbritish.co.uk)



*North British Distillery is leading the way in demonstrating how anaerobic digestion can reduce costs and improve sustainability in the food and drink and industry.*



# Powertecnik powers up John Lewis Partnerships

Hampshire-based power specialist Powertecnik has won a two-year exclusive contract to supply generators to John Lewis Partnership and Waitrose stores across the whole of the UK from Stirling to the Channel Islands. The generators will ensure that customers continue to benefit from the Partnership's legendary customer service, regardless of interruptions in power supply from the main grid. The contract includes supplying all new-stores and major refurbishments for the John Lewis Partnership with power back-up diesel generators for refrigerators and freezer units in stores over the next 24 months, with the potential for a further third year extension.

The sustainable nature of the equipment used fits the Partnership's 'the Waitrose Way' and 'Bringing Quality to Life' 'green' initiatives.

*We aren't prepared to compromise on quality, and by backing up the power supply to our stores we can guarantee that customers can access our products regardless of mains power failure.*

Powertecnik has already worked with Waitrose for two years, and its service levels have lived up to the John Lewis standard. Darren Pearce, Managing Director says, "Most business people in this country have grown up using John Lewis as a benchmark for quality and customer service. At Powertecnik we too are dedicated to delivering exceptional customer service and work hard to ensure we deliver it."

General Manager Engineering at Waitrose explains: "Powertecnik has consistently provided us with an excellent service, supplying generators to maintain power to a number of new stores over the past 12 months. There has been a lot of press coverage recently about potential power shortages. We aren't prepared to compromise on quality and by backing up the power supply to our stores we can guarantee that customers can access our products regardless of mains power failure. Over the next 24 months, we hope to increase numbers and ensure that further locations are backed up in the event of power outage or downtime. We value Powertecnik's sustainable equipment, which is one of the main reasons that we selected the company to partner us with this vital work."



Powertecnik provides a two-year warranty on its generator equipment, its nationwide network of service engineers carries out service visits to each store to ensure there is no downtime for the critically important equipment.

Hardware sales account manager at Powertecnik says: "We started working alongside Waitrose in 2011 when we supplied a 570kVA generator to an opening store in the Channel Islands. Since then we have supplied gensets to many different stores. We commission all of the generators and supply the fuel required for each one."

To find out more about Powertecnik and the services it has to offer, please contact the main Fareham office on **01489 560700** or email **sales@powertecnik.com**

**powertecnik**  
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# The ABB Range of Enclosed Automatic Transfer Switches 40 amp to 1600 amp

Following on from the successful introduction of the OTM ATS open type switches ABB have launched a wall mounted enclosed Automatic Transfer Switch (ATS) range from 40 amp to 630 amp and floor standing enclosed ATS 800 amp to 1600 amp. Complying with IEC60947-6.

The enclosed ATS range can be supplied with either the OMD300 controller or the OMD800 controller depending on the requirements of the installation both being suitable for triple pole and neutral and single phase systems, Suitable for transformer/ generator or two transformers applications.

The OMD800 controller can communicate through a two way fieldbus using the communication protocol Modbus RTU. With 8 digital inputs and 6 digital outputs allowing the customer the flexibility of control,

including manual back switching, generator on load and off load test, manual back switching.

There are different alternatives to choose the operating mode and to prevent unwanted operation. The switch has a selector switch to choose between manual and automatic operation. Automatic operation is disabled by moving the selector switch to manual, also by padlocking the latch or inserting the handle. Both manual and automatic operation can be prevented by padlocking the handle.

To assist in the specification ABB offer optional extras to the Enclosed ATS range, Pilot lights showing the status of the supplies, the controller can be door mounted with an IP54 cover plate. By-pass switches for either one or both supplies and energy metering can also be included in the final assembly.



The wall mounting enclosures are sheet steel IP65, for outside installations ABB can offer the Gemini range of composite enclosures.

[www.abb.co.uk](http://www.abb.co.uk)

## A time for change at Advanced



**Since the inception of Advanced, it has been a policy to make a change that improves our business each and every new financial year. As we have just completed a successful year, I'd like to share with you our change for 2013...**

First, let's start with a little background. Do you find that the elation of winning an order is tempered by the compromises made to secure that order? Months of being kept hanging by a client, countless revised quotes (essentially all the same but ultimately 20% cheaper) and concern that a mistake in the quote has rendered the project less than worthwhile?

You overcome these fears, complete the job diligently, and acquire written confirmation against every legitimate variation requested by the client. The project is completed to the satisfaction of all, and then you sit down to confirm the final account... Oh dear! Yes, it was requested. Yes, it was confirmed in writing, but the conversation all too often follows this script:

"I know we asked, but there's no money in the budget to pay for it, so I'm not paying for this that and the other..."

If the above sounds an unfamiliar tale, please apply for a job, because whatever you're doing, you're doing it better than us!

Simply put, Advanced feels that the client, contractors in particular, are employing resources with the sole objective of tilting the table in their favour, and that they are driving prices down to such an extent that we, as suppliers, are forced to feed off the crumbs they afford us. We all need orders after all.

Time for Change is about a change of attitude, and the need to put a resource in place to counterbalance these unjust practices and "procurement departments".

As a consequence Advanced are restructuring to allow the time and effort to address the commercial aspects of our business; to permit a more rigorous and timely response to clients demands, and to withstand the procurement wheezes and re-specifications. The restructuring involves a re-allocation of duties, facilitated by the addition of several new senior personnel to guarantee the existing quality and continuous improvement programme (which is a hallmark of Advanced) is maintained and developed.

- Darren Robson, becomes the Chairman, and will concentrate on the strategic development of the Company.
- David Billingsley will take over the duties of Managing Director.
- Replacing David as General Manager will be Kevin Bell. Kevin comes from outside the industry and

has held senior management positions for many years – he brings both a wealth of experience and fresh ideas with him.

- The introduction of a new role will be taken up by Mark Ellis as Head of Manufacturing. Mark has worked in similar industries for many years and brings new production techniques and processes, designed to improve all aspects of the production process.
- And finally, another new addition is Alex Lander. Alex is a very well-known figure within the industry, and joins as Head of Service and Aftersales.

I hope you benefit from an insight into what we are doing, and the reasons behind it. You will all have plans of your own to cope with the continued economic circumstances, but spare a thought: It is worth considering your own commercial policy before dropping that last 2% to secure the order today. After all, you need to make a margin too.

[www.adelttd.co.uk](http://www.adelttd.co.uk)







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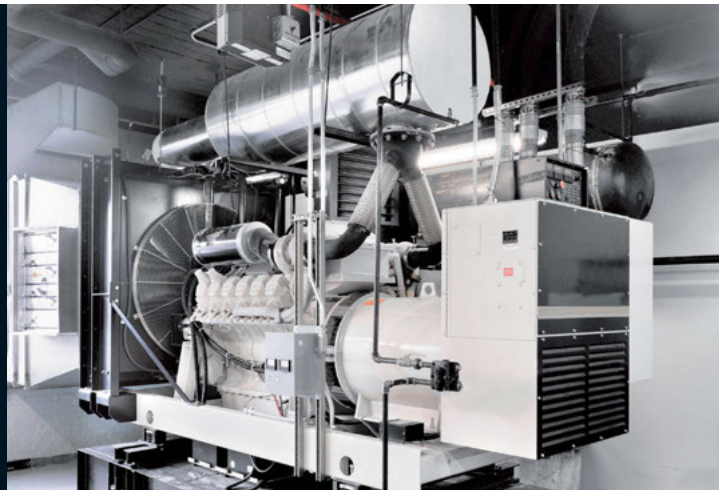
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