Case Studies: BOC Hymera

150W Hydrogen Fuel Cell Generator

The BOC Hymera DC is a new hydrogen-powered fuel cell generator for applications requiring up to 150W of electrical power.

It is ideally suited for portable power applications and those that need to operate continuously for long periods of time.

 www.arcolaenergy.com daniel@arcolaenergy.com

HyLight Series - Event Lighting Solution

The HyLight series are integrated fuel cell powered lighting solutions for the events industry

Seven HyLight 150 systems were used at Latitude Festival 2010 to power lighting in the Theatre Tent and have been available since then for hire from White Light Limited (suppliers to the entertainment industry). The HyLight 150 provides 14VDC output for use with efficient LED lighting such as Pulsar's Chroma range. Moving up the power scale, the HyLight 500 features 2 Hymeras in a parallel architecture, hybridised with 100Ah batteries to supply peak-loads.

Hylight 500 was developed to power lighting for Simple8's stage production 'The Seven Stages of Cruelty' and has since been used by Terry Jones' adaptation of The Owl and the Pussycat which was performed on a barge touring UK waterways during 2012, ending up on the Regents Canal in East London for the beginning of London's Olympic season. (http://www.roh.org.uk/news/the-owl-and-the-pussycat-takes-to-the-water).

The HyLight range is particularly suitable for non-grid-connected productions requiring a low-noise, zero-emission alternative to diesel generators.

 www.arcolaenergy.com daniel@arcolaenergy.com

Ecolite-H2 Site Lighting

Taylor Plant Hire Limited have installed Hymera in their Ecolite range of lighting towers, to create the Ecolite-H2 range.

Available in 'trailer' or 'palletised' configurations, the Ecolite-H2 has a fully autonomous run time of between 50 and 900 hours depending upon fuel cylinder configuration, and dusk to dawn auto switching is included as standard. Integrated GPS and telemetry tracks location and runtimes and allows the Ecolite-H2 to be turned on/off remotely through a web browser. This system can also issue refuelling alerts by SMS or email when it's time to switch hydrogen cylinders or order more from your supplier.

With no internal combustion engine or harmful emissions, Ecolite-H2 can be used in a wide range of locations including under bridges or in tunnels. This makes Ecolite-H2 suitable for locations where traditional lighting towers cannot be used. Ecolite-H2 is also ideal for environmentally sensitive areas where there must be zero risk of contamination such as near reservoirs and rivers.
http://www.tcp.eu.com/news/2013/02/06/youngmantcp-unveil-the-worlds-first-led-hydrogen-fuel-cell-lighting-tower/

Site Lighting for the wetlands area of London's Olympic Park

A 50-meter walkway lit using a Hymera-based system during the construction of the wetlands area of London's Olympic Park during 2011

The system featured efficient low power LED festoon lighting and passive infrared motion detectors at each end to reduce power consumption by switching off the lights when nobody was working in the area.

A fuel cell solution was chosen due to the environmental sensitivity of the area, where refilling diesel generators and the associate risk of spillage was unacceptable.

The system consumed less than two cylinders of hydrogen over the six week winter period of the installation.

 www.arcolaenergy.com daniel@arcolaenergy.com

Fuel Cell Powered Environmental Monitoring

The Hymera DC is particularly suitable for environmental monitoring applications where long unattended runtimes are required in off-grid locations. Severn Trent Water installed 18 Hymeras along the length of the Elan Valley pipeline between Powys, Wales and the Midlands. The monitoring equipment runs for up to 2 months between replacements of cylinders, which in these remote locations reduces operating costs considerably compared with the frequent visits required by alternative solutions.

Hymera DC's inbuilt battery-charge circuitry allows hybridisation with a battery for efficient use with low-loads, whereby the fuel cell typically runs for 12-18 hours per week to recharge the battery which in turn supplies power to the connected device. This improves efficiency by reducing balance-of-plant load while the Hymera is in low power 'sleep' mode. The Hymera includes automatic cold-start or sub-zero capability allowing year-round operation in temperate climates.

Combining the system with photovoltaic panels reduces hydrogen consumption, which in turn lowers operating expense, whilst retaining the security of available power in case of extended periods when available solar power is limited (winter/extended periods of bad weather).

Morgan Sindall have installed a Hymera/battery/photovoltaic system to power a noise monitor at the major Crossrail construction site in East London, where it has supplied constant power throughout the rebuilding of Pudding Mill Lane station.

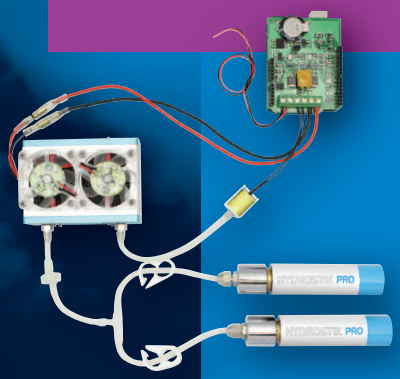
 www.arcolaenergy.com daniel@arcolaenergy.com

arcola energy

PUTTING FUEL CELLS AND HYDROGEN TO WORK

OPEN SOURCE SYSTEMS

inspiring the next generation of engineers



DEVELOPER KITS

Demystifying fuel cells and hydrogen. Build your own fuel cell powered devices. No specialist skills needed, safe for home and education use, yet popular with professional engineers and researchers.

100W SCALE

clean, quiet power on demand

REMOTE POWER

Fuel cells provide long duration, clean electric power generation in off-grid situations. They are particularly suited to environmentally sensitive areas and when hybridised with wind or solar they provide extremely high levels of autonomy.

KW SCALE

freeing electric vehicles

LIGHT WEIGHT AUTOMOTIVE

Adding fuel cells to electric vehicles allows us to realise the many benefits of battery electric vehicles (such as clean, quiet operation) whilst delivering performance, range and refuelling time that meet customer expectations of petrol or diesel fuelled vehicles.

ABOUT ARCOLA ENERGY

Arcola Energy designs, manufactures and deploys hydrogen fuel cell systems; and is active in multiple fuel cell application markets including education, portable power, transport and stationary. Our customers include vehicle manufacturers, universities, construction plant operators, film & TV, and science educators.

We also lead world-wide automotive and all European engineering projects for Horizon Fuel Cell Technologies, the world's largest volume producer of small PEM fuel cells.

ABOUT FUEL CELLS

Fuel cells have a crucial role to play in a low-carbon economy. Like batteries, they are efficient electrochemical devices, delivering DC electric power directly from chemical energy without moving parts, noise or vibration. Unlike batteries however, fuel cells can operate continuously, as the energy source is an externally supplied fuel.

ABOUT HYDROGEN

Hydrogen is the preferred fuel for most fuel cells; thus they are clean at point of use, the only by-product being water. This can lead to near-carbon-neutral power when the hydrogen fuel is produced from renewable sources.

Arcola Energy
24 Ashwin St
London E8 3DL

020 7503 1386

sales@arcolaenergy.com

www.arcolaenergy.com

@arcolaenergy

ArcolaEnergy