WHAT YOU WILL GAIN FROM ATTENDING THIS FORUM:

- Increase your knowledge of the latest emergency and remote power technology developments
- Hear real world emergency and remote power case studies from around the globe
- Practical and state of the art advice to maximise the value of your emergency and remote power systems
- Unashamedly non-commercial presentations – no sales pitches
- Excellent networking opportunities – learn from experts in the field

WHO SHOULD ATTEND:

- Electrical Engineers
- Instrumentation Engineers
- Chief Engineers
- Plant Engineers
- Automation Engineers
- Engineering Managers
- Control Engineers
- Mechanical Engineers
- Operators and Technicians
- Anyone actively involved with implementing or optimising an emergency or renewable power supply, or stand by plant; and looking for reliable power supplies.
- Anyone with a responsibility for ensuring continuity of power during a failure in electricity supply

26th & 27th August 2014
Mercure Hotel
PERTH, AUSTRALIA

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This event will be an industry-wide forum to examine and discuss the latest local and international practices and standards in emergency power and remote area power supply. The forum will focus on industrial and remote electrical systems in the manufacturing, healthcare, military, mining, water, electrical, telecommunications and processing industries.

There are two main themes for this forum. The first is ensuring power supplies are reliable in industrial environments such as power plants, utility services and processing facilities. The second theme is remote area power supply. Due to the remoteness of some industrial locations in Australia such as mine sites, cattle stations, off-shore rigs, islands and remote communities, there is a growing need for off-grid power systems such as hybrid and renewable energy solutions. It is essential that power supplies in Australian cities and rural areas are reliable, and this event will be covering all the bases.

This forum will be an excellent opportunity for delegates to network with peers and gain significant new information and techniques on emergency and standby power supply systems, batteries, emergency power generation, and renewable and reliable power supplies.

### FORUM DAY ONE – 26TH AUGUST 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Description</th>
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<tbody>
<tr>
<td>8.00am</td>
<td>Registration</td>
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<tr>
<td>8.15am</td>
<td>Opening Address</td>
<td>Opening Address and Guest Speaker</td>
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<tr>
<td>8.30am</td>
<td>Opportunities and challenges for renewables in off-grid power systems</td>
<td>Keynote Speaker: Jamie Ally – General Manager – Engineering, Energy Made Clean</td>
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<tr>
<td>9.30am</td>
<td>Highly reliable off-grid DC energy systems: Trends beyond communications energy systems</td>
<td>Keynote Speaker: John Hawkins – Technical Director, Telepower Australia</td>
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<td>10.15am</td>
<td>Innovative solar diesel hybrid energy systems</td>
<td>Keynote Speaker: Chen Nayar – Regen Power Pty Ltd</td>
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<td>11.30am</td>
<td>Remote mining hybrids: When and why to consider it?</td>
<td>Keynote Speaker: Craig Chambers – Market Sector Director – Power Generation, AECOM</td>
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<tr>
<td>12.15pm</td>
<td>Lunch</td>
<td>Lunch – 12.15pm</td>
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<tr>
<td>1.15pm</td>
<td>Power system harmonics in LV systems (relating to remote power supplies)</td>
<td>Keynote Speaker: Ian Bitterlin – Chief Technology Officer, Emerson Network Power Systems</td>
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<tr>
<td>1.45pm</td>
<td>Afternoon Tea</td>
<td>Afternoon Tea – 2.45pm to 3.15pm</td>
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<tr>
<td>3.45pm</td>
<td>Networking Session</td>
<td>Networking Session: 4.45pm to 6.45pm</td>
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**Aims:**
- Develop a working knowledge of harmonics and earthing
- Troubleshoot harmonic problems
- Isolate and rectify power quality
- Setting the scene

**Topics:**
- Voltage variations
- Harmonics
- Electrical noise and mitigation
- System planning
- Site surveys
- Case Studies

**Includes:**
- Afternoon Tea – 2.45pm to 3.15pm
- Networking Session: 4.45pm to 6.45pm

**An hour dedicated for all attendees to meet and socialise with experts and industry peers at the Emergency & Remote Power Supplies Forum Cocktail Hour.**

**Closing:** 5.45pm
Integrating renewable energy into emergency and standby power applications
Ian Bitterlin – Chief Technology Officer, Emerson Network Power Systems
Sustainability is achieved in a three-step process, starting with reduction in consumption, and ending with the application of renewable energy, or at least, energy from a low-carbon source. However, renewable power sources have the characteristic of intermittence – the sky isn’t always bright and the wind doesn’t always blow – and matching the production of energy to a given load, or storing it for later use, will become increasingly important as the attraction in fossil fuels declines. When the load is required to meet emergency conditions such as flood control pumps or telecom services in remote areas, the application of renewable energy may be attractive on one side (not depending upon a grid connection), but hard to implement on the other. This presentation looks at the options for generation, storage and integration for an emergency/standby LV application in a remote location.

Managing the variability of solar PV on remote or isolated electricity networks
Ed Blackley – Business Development Manager – Solar, Mpower
The recent, rapid decline in costs of solar photovoltaic (PV) technology has opened numerous opportunities to reduce electricity consumption behind the meter. Integration of PV on residential and commercial rooftops continues strongly despite reduced government incentives. Remote and isolated electricity networks present different challenges to network operators and power system owners wanting to integrate these new, low cost sources of energy generation. This presentation will explore these challenges and present several case studies of different technology approaches that have been deployed in Australia to mitigate the variable nature of solar electricity. It will also consider the future direction of low-cost technology solutions to facilitate high PV penetration into these systems.

Morning Tea – 10.15am

Diesel abatement – a strong case for battery storage in remote area powering
John Hawkins – Technical Director, Telepower Australia
Power provision in remote communities has traditionally often been by diesel generation, typically at significantly increasing operating costs in terms of on-going supply of diesel fuel. The use of renewable energy sources (e.g. solar, wind) to offset diesel consumption is often considered as an option, but the cost-effectiveness varies with system size and operating conditions. The use of energy storage (batteries) to directly augment diesel operation and abate diesel consumption in hybrid installations can improve the business case. This presentation will canvas the engineering dimensions when considering battery-diesel and PV-battery-diesel hybrid systems; and the details of some real systems which demonstrate the differences will be explored.

Challenges of practical application of emergency stand-by and remote power
Marie Mickalova – Commercial Manager, ComAp Pty Ltd
If you need to provide a reliable power supply for manufacturing, healthcare, mining, or any other mission-critical application, you need to consider how to maximise efficiency, how to protect your equipment, how to operate equipment safely, and how you can monitor and control equipment remotely. This paper will cover the challenges faced on two different control system installations: a remote power station with various auxiliaries and an emergency back-up power application for a hospital.

Lunch – 12.15pm

How renewables can reduce operating cost and increase reliability off-grid: the King Island case study
Simon Gambie – Manager, Small Renewable Asset Development, Hydro Tasmania
The King Island Renewable Energy Integration Project has achieved world-leading renewable energy utilisation in an off grid system through the integration of wind and solar, reducing diesel use and operating cost with no impact on reliability or security of power supply. This has been achieved through the deployment of an advanced control system purpose built for diesel hybrids, and the use of innovative enabling technologies that have been proven effective in the field. King Island has been utilising renewable energy to save diesel fuel for over 15 years and has significant operational history as a low, medium and high renewable penetration system. This mega-watt class system is able to operate unmanned and will automatically adapt to available renewable conditions, operating from 100% diesel to 100% renewable penetration, and all states in between. The solutions developed on King Island have broad application to other hybrid off-grid systems where operators are looking to cost effectively reduce diesel consumption while maintaining reliability and security of supply, whether that means saving 10% of your fuel, or 70%.

Using solar power as a primary supply source for LV railways equipment in remote areas
Raymond McKay – Electrical Engineer, Aurizon
Aurizon recently completed a Remote Area Power Supply project through concept, design, procurement, construction and commissioning. A V-cycle approach to the project incorporated the requirements from the asset owner and maintainer with successful delivery of the project. Early in the project it was recognised that the supply authority connection would be expensive and not timely to secure power for signalling equipment. Contrary to established practice, solar power was used as a primary supply in this safety critical application. The solution met all client requirements for reliability by employing redundancy in critical parts of the design.

Afternoon Tea – 2.45pm

IEG61850 based solutions for remote power systems
Dinesh Mithanthaya – Design Manager, GHD
The power industry is flooded with requirements for driving efficiency, responsiveness and flexibility of the power network, whilst delivering higher reliability and lower costs. These drivers combine under the concept of future networks that demand new solutions, which themselves demand new technologies to provide them. IEC61850 provides new concepts on protection and automation engineering technology to overcome such challenges. This presentation will emphasise use of an IEC61850 based solution to meet all the control and protection requirements of the power networks. This preferential solution gives the opportunity to explore both existing and potential solutions for how protection and automation systems must continue to evolve to encompass the new requirements brought as a result of future networks. It is a neat and clean solution, easy to implement and maintain, leading to cost benefit to the user.

Australian made utility scale energy storage system – key learning outcomes from the project
Masoud Abshar – Managing Director, Magellan Power
In 2014 Magellan Powertronics undertook the design, manufacture, installation and commissioning of a 100kw/400kWh energy storage system for the NSW utility TransGrid. The solution consisted of a four quadrant inverter and 400kWh of lithium batteries in a 20 foot container. The main function of the equipment is to store a substantial quantity of solar power into the batteries, and have them available to support peak power demand and provide back-up for the connected load. It is also utilised for improving power quality by injecting real and reactive power into the grid. This case study will discuss the challenges of the project, why this solution was chosen, and key learning outcomes for other engineers.

Discussion Panel
This session will provide delegates with the opportunity to ask our speakers questions, discuss an area in greater detail or get some feedback from fellow delegates on a particular topic or issue.

Closing – 5.00pm

All forum papers are reviewed and selected for their high quality and technical value by our panel of specialists experienced in the theory and practice of Emergency & Remote Power Supplies.

Sponsorship Opportunities
Representing your business at the Emergency & Remote Power Supplies Forum will provide you the opportunity to reach key decision makers from a multitude of industries. For more information on sponsorship and exhibition opportunities please contact IDC Technologies via email conferences@idc-online.com.
**KEYNOTE SPEAKERS:**

**PROF. IAN BITTERLIN**  
Chief Technology Officer, Emerson Network Power Systems EMEA  
Ian is a UK Chartered Engineer with 25 years’ experience in data-centre power and cooling starting with Anton Piller (manufacturers of static, rotary & diesel UPS) as Director. This led to several senior posts within the Emerson EMEA organisation, including MD of Emerson Network Power in the UK. Other past appointments have included VP EMEA/Asia-Pacific for Active Power (flywheel UPS), International Sales Director for Chloride Power Electronics, CTO of Prism Power (LV Switchgear) and CTO of Ark Continuity Ltd, a developer of data-centre facilities.  
Ian is now Chief Technology Officer for Emerson Network Power Systems in EMEA and Visiting Professor, School of Mechanical Engineering, University of Leeds where 3rd/4th year students are mentored for their data-centre related dissertations.

**JAMIE ALLY**  
General Manager – Engineering, Energy Made Clean  
Jamie works with government and corporate clients in the fields of energy, climate change, and sustainability; and has built a strong reputation in the sustainable fuels and vehicle technology industries, based on his technical, engineering, and R&D skills combined; with a comprehensive understanding of life cycle and product development impacts. He was responsible for systems design and hydrogen drivetrain development and optimisation at Ballard Power Systems, and is one of the few engineers in Australia with experience in all stages of development and commercialisation of novel low-carbon technologies. Jamie is also a Director of the Australian Association for Hydrogen Energy.

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**REGISTRATION FORM:**

**EMERGENCY & REMOTE POWER SUPPLIES FORUM**  
Tuesday 26th & Wednesday 27th August 2014  
Mercure Hotel, Perth, Australia

Simply complete this form online or return by email or fax

**1. DELEGATE DETAILS**

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**2. HOW DID YOU HEAR ABOUT THIS EVENT?**

- [ ] Received an email from IDC
- [ ] Received a brochure in the mail
- [ ] Searched online (Google, Yahoo etc)
- [ ] Recommended by a friend/colleague
- [ ] Magazine advertisement/insert (please specify which magazine below)
- [ ] Other (please specify) ____________________________________________________________________________________

**3. REGISTRATION & PAYMENT DETAILS**

Prices shown are inclusive of GST

- [ ] OPTION 1: Early Bird Offer – Book on or before 29th July (SAVE $179.50)  
  $1615.50 x ___ delegates = $______

- [ ] OPTION 2: Standard Registration – Book after 29th July  
  $1795.00 x ___ delegates = $______

- [ ] OPTION 3: Early Bird Discount AND 3 for 2 Offer – Book on or before 29th July (SAVE $1615.50)  
  3 x delegates: 2 x $1615.50 = $3231 = $______

- [ ] OPTION 4: 3 for 2 Offer Standard Registration – Book after 29th July (SAVE $1795)  
  3 x delegates: 2 x $1795 = $3590 = $______

Additional delegates: Corporate packages available upon request  
TOTAL DUE = $______

**PLEASE NOTE:** Full payment is required prior to the commencement of the forum.

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**GENERAL INFORMATION**

**Confirmation Details**

A confirmation email and invoice will be sent to delegates within 3 days of receiving the registration.

**Cancellation Policy**

A fee of 20% cancellation will apply for cancellations received 7 – 14 days prior to the start date of the conference. Cancellations received less than 7 days prior to the start date of the conference are non-refundable, however substitutes are welcome.

**Venue**

Mercure Hotel Perth  
10 Irwin Street, Perth WA 6000  
Phone: 08 9326 7000

**Accommodation**

The conference venue has accommodation available. Contact the venue directly on 08 9326 7000 and quote the forum code IDC270814 when booking to receive the best room rate available.

**Food and Beverages**

All lunches, morning and afternoon refreshments are included in the registration fee.

**Unable to Attend**

If you are unable to attend the full conference program, contact us for details to attend individual sessions, or to purchase the Conference Resource Kit.

**Enquiries**

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