WHO SHOULD ATTEND:
- Accelerate your understanding of the basic principles of stand-alone power system design
- Hear how solar-diesel hybrid installations can increase storage capacity and energy efficiency
- Learn about Australian Standard AS/NZS 4509.1 & 2 with emphasis on key areas of sizing and safety
- Gain a comprehensive understanding of how to size, configure, and design solar-diesel and battery systems
- Discuss how renewable energy can help reduce costs and improve profitability and success
- Gain an understanding of the key differences between solar and battery products, and how to size and configure depending on needs
- Check out some of the latest battery and inverter models plus battery system selection including voltage and chemistry
- Network with experienced experts and your industry peers
- No sales pitches - non commercial presentations
- Hear local industry case studies from experienced installers and engineers covering small and large installations

WHAT YOU WILL GAIN FROM ATTENDING THIS CONFERENCE:
- Electrical and mechanical engineers
- Electricians
- Electrical and mechanical technicians and installers
- Battery application engineers
- Project, process and applications engineers
- Technical directors and engineering managers
- Energy storage and solar professionals
- Marketing, BDM and product managers
- Smart grid engineers
- Renewable energy and power electrical systems engineers
- Manufacturing engineers

Keynote Speaker & Workshop Presenter:
GLEN MORRIS
Principal of SolarQuip
Former Vice President of the Smart Energy Council
CTO of the Smart Energy Lab

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Glen Morris
Principal of SolarQuip
Former Vice President of the Smart Energy Council
CTO of the Smart Energy Lab

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### CONFERENCE PROGRAM – DAY ONE – 22nd May 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8.00am</td>
<td>Registration</td>
</tr>
<tr>
<td>8.20am</td>
<td>Opening Address</td>
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<tr>
<td>8.30am</td>
<td><strong>Building the Autonomous Grid</strong></td>
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<td><strong>Glen Morris – Principal of SolarQuip</strong></td>
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<td>Combining multiple energy generation and storage systems, alongside smart load management makes for a resilient and extendable electricity network decoupled from traditional utility grids. Australian Standards and smart energy systems have made embedded control of generation and storage assets easier and safer. Glen Morris will draw on his experience in building small solar/diesel/battery microgrids and the associated standards and topology that underpin good network design, product selection and feature sets.</td>
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<tr>
<td>9.00am</td>
<td><strong>Tipperary Station Case Study – Solar-Diesel Generator System in the Northern Territory</strong></td>
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<td><strong>Thomas Wearne – Solar PV Design Engineer, Country Solar NT</strong></td>
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<td>In 2016, the iconic Tipperary Station contacted Country Solar NT to discuss options for reducing their annual fuel bill of several hundred thousand dollars. Their largest generator (390 kW) implied that the site’s power requirements vastly exceeded the capability of off-the-shelf battery inverters and quick calculations suggested the investment would be several million dollars which did not suit the station’s cautious investment approach. As an alternative, the station opted for 100 kW of solar to be directly integrated with their bank of generators. This provided a greater technical challenge than a solar/diesel/battery solution but had a significantly better business case. Thomas will discuss the project and lessons learnt.</td>
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<tr>
<td>10.45am</td>
<td><strong>Morning Tea – 10.15am</strong></td>
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<td>10.45am</td>
<td><strong>Hybrid System Using Innovative Variable Speed Drive (VSD) Technology for Pumping Water</strong></td>
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<td><strong>Nick Hughes – Manager, Power Electronics Australia</strong></td>
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<td>Here Nick will discuss new Variable Speed Drive (VSD) technology that has a hybrid design and is raising a lot of interest with remote sites especially in pumping water. Essentially the VSD is connected to a solar array which is sized accordingly to provide energy to a pump while the sun is out. If and when a cloud rolls in, the pump automatically slows down to match the amount of energy available. Alternatively, if the pump is needed to provide a constant pressure and run at the desired speed to maintain a set point, the VSD can call for a generator to start in cloudy conditions and turn off the generator when sunny again. This all happens automatically and can go up to some seriously large pumps e.g. 400kW.</td>
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<tr>
<td>11.30am</td>
<td><strong>Zinc-Bromine Modules (ZBMs) Batteries for Off-Grid Solar Application</strong></td>
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<td><strong>Mike Giulianini – Chief Technical Officer, Redflow</strong></td>
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<td>Zinc-Bromine Modules (ZBMs) have been designed to target applications where the availability of power is either demanded to renewables and diesel generators (off-grid) or it is unreliable (fringe of grid). Thanks to the 100% Depth of Discharge (DoD), no need to recharge, extended temperature range, no calendar life and extreme adaptability of performance, the ZBMs are ideal candidates for all applications requiring a robust and reliable energy storage system. Here Mike will explain some of the benefits of ZBMs batteries including some local case studies and applications of this new technology.</td>
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<tr>
<td>Lunch</td>
<td><strong>Lunch – 12.15pm</strong></td>
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<tr>
<td>1.15pm</td>
<td><strong>Getting the Most from Your Battery</strong></td>
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<td><strong>Stephanie Moroz – CEO, Davanz</strong></td>
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<td>Choosing the right battery for the application and then ensuring that it performs at its best is critical to achieving the target cost of the installation, while minimising the payback period and maximising durability of the energy storage system. An overview of the practical considerations for different categories of batteries will be provided. This will include a more detailed discussion of typical lithium ion battery chemistries and the direction that lithium technology is taking.</td>
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### SESSIONS

**SOLAR PV, DIESEL AND BATTERY SYSTEMS – APPLICATIONS & CASE STUDIES**

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>2.00pm</td>
<td><strong>Solar PV, Diesel and Battery Systems – Applications &amp; Case Studies</strong></td>
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<td><strong>Lachlan Bateman – Managing Director, Clean Technology Partners Pty Ltd</strong></td>
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<td>This presentation covers a selected range of applications for the integrations of solar PV, diesel generators and batteries for both grid connected and off grid (mini grid) installations. Drawing on project experience designing systems for remote mine-site, remote holiday resort and peak demand management applications, Lachlan will discuss the technical and financial factors contributing to a successful project. A selection of case studies will be presented covering specific challenges and lessons learned.</td>
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<tr>
<td>3.15pm</td>
<td><strong>When is a Micro Grid Appropriate?</strong></td>
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<td><strong>Lindsay Hart – Manager Australia/NZ, Selectronic</strong></td>
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<td>With many years of off grid experience behind us, we are seeing systems slowly but surely become larger, sometimes it is electrically larger but also physically remote from a main power system. In this presentation Lindsay will explore how to expand an existing system up to 150kW per phase using distributed energy, the issues to consider and the technical hurdles you may encounter. Also discussed will be approaches to new systems, and when is it more appropriate to go to a higher DC voltage or consider a larger central system vs a Distributed Energy Micro Grid.</td>
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<tr>
<td>4.00pm</td>
<td><strong>100MW+ Solar Farm Design, Challenges and Lessons Learnt</strong></td>
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<td><strong>Abdallah Qader – Renewable Engineer, Downer</strong></td>
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<td>Design of large-scale photovoltaic (PV) plant presents a number of challenges to the designers. Most of these challenges can be overcome at preliminary design stage, whereas others can only be addressed during detailed design. In this presentation, critical design activities that need to be undertaken early on in design to avoid costly mistakes at later stage are discussed. The first part will address DC configuration along with PV layout optimisation and how this affects BOQ such ITB/PCUs count, trackers, IPCS, piles, posts, AC and DC cabling. Clare Solar Farm (127.8MW) will be discussed in the tutorial session to address DC and AC reticulation systems and some key lessons learnt.</td>
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<tr>
<td>4.45pm</td>
<td><strong>The role of Cloud Forecasting Systems in Hybrid/PV Installations</strong></td>
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<td><strong>Chris Pyo – Division Manager – Renewable Energy, ComAp</strong></td>
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<td>Fuel optimisation, PV penetration and network stability targets can be competing interests when dealing with Diesel/PV hybrid microgrids. Typical solutions rely on Battery Energy Storage Systems (BESS) to bridge this gap, which are direct and easily understood, but can be cost prohibitive in larger applications. Accurate prediction of clouding effect and subsequent preventative call up of additional capacity can be a viable alternative solution. With smarter control of generator assets, both capital expenditure and complexity of the overall installation is reduced. Opportunities that may have typically presented as a marginal benefit to the customer/end user can subsequently become a viable commercial interest.</td>
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<tr>
<td>Closing</td>
<td><strong>Closing – 5.00pm</strong></td>
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**NETWORKING SESSION**

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<th>Time</th>
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<tr>
<td>5.00pm</td>
<td>Networking Session – 5.00pm to 6.00pm</td>
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<td>An hour dedicated for all attendees to meet and socialise with experts and industry peers at the Solar-Diesel Hybrid &amp; Battery Systems Conference Cocktail Hour.</td>
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8.30am Session 1

FULL DAY WORKSHOP
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Designing Stand-Alone Power Systems
Glen Morris – Principal of SolarQuip
Former Vice President of the Smart Energy Council
CTO of the Smart Energy Lab

Attend this one day workshop to accelerate your understanding of the basic principles of stand-alone power system design. The workshop will focus on the Australian Standard AS/NZS 4509.1 & 2 with emphasis on key areas of sizing and safety.

Topics covered will include: understanding the opportunities of demand side reduction and smart energy management; battery system selection including voltage and chemistry; sub-system efficiency considerations for storage, conversion and distribution; PV system sizing to meet load energy requirement, generation losses and environmental derating factors; battery sizing for days of autonomy, balance of backup resilience and choice of secondary generation priorities.

At the completion of this workshop, participants will have the necessary design knowledge to configure and size a stand-alone power system to meet an installation’s energy needs. The workshop will be highly interactive and be led by the participants’ skills requirements.

Closing – 4.30pm

ABOUT THE CONFERENCE

Renewable energy is not common place or part of a mass market in Australia yet, but its time is coming. We are looking forward to a new era of clean energy where we can start to cut our carbon emissions by introducing solar-diesel hybrid and battery systems into our industrial plants and settings.

Solar-diesel hybrid and battery installations reduce diesel power generation reliance and improve the reliability of power systems. During the day the systems collect as much solar power as possible and when the sun goes down; the diesel power generation kicks in to take over the night shift. It’s a beautiful relationship and prices for solar and batteries are quickly dropping making these systems more attractive. The benefits of installing solar-diesel hybrid plants are numerous; one installation can reduce carbon dioxide emissions by thousands of tonnes a year which is an example of renewables providing substantial and reliable results for Australian industries.

This conference will have a technical focus, covering key design, implementation, and operational considerations for solar/diesel hybrid and battery systems including installation and maintenance. It will explore the differences between battery storage and inverter products, and how to design appropriate systems according to different installation and customer requirements. Also covered will be the hurdles encountered when introducing solar to an existing diesel power system, retrofitting, and the importance of maintaining consistent electricity.

This event has been developed to build and accelerate the knowledge of industry employees and business owners on best practice when it comes to the design, installation and maintenance of renewable hybrid systems. The main goal of this conference is to help businesses take advantage of cleaner energy through improving the quality of power generation systems using innovative solar-diesel hybrid and battery installations.

All conference papers are reviewed and selected for their high quality and technical value by our panel of specialists experienced in the theory and practice of hybrid systems.

Sponsorship Opportunities

Representing your business at the Solar-Diesel Hybrid & Battery Systems Conference in 2018 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 Sarah Montgomery via email: conferences@idc-online.com

FOR FURTHER INFORMATION:
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GENERAL INFORMATION

REGISTRATIONS

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 not refundable, however substitutes are welcome.

Venue
Oakwood Hotel & Apartments
15 Ivory Lane, Brisbane, QLD, 4000
AUSTRALIA
Phone: (07) 3218 5800

Accommodation
The conference venue has accommodation available and can offer the following rates for delegates:

• Studio $100
• Studio River $120
• One Bedroom Standard $140
• One Bedroom River $160

Contact directly on (07) 3218 5800 and quote IDC Technologies when booking and receive the special rates.

Food and Beverages
Lunch plus morning and afternoon refreshments are included.

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.

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REGISTRATION FORM:

SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE
22nd & 23rd May 2018, Oakwood Hotel & Apartments, Brisbane

Simply complete this registration form online or return by email

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Email:

Mr/Ms: Job Title:

Email:

Mr/Ms: Job Title:

Email:

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) __________________________________________________________________________

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Prices shown are inclusive of GST

SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE – 22nd & 23rd May 2018

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☐ OPTION 2: Standard Rate (NO Early Bird Discount)
– Book after 24th April
$1795.00 x _______ delegates = $_________

☐ OPTION 3: 3 for 2 Offer AND Early Bird Discount
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3 delegates: $1615.50 x 3 = $4846.50 = $_________

☐ OPTION 4: 3 for 2 Offer AND Standard Rate (NO Early Bird)
– Book after 24th April (SAVE $1795)
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