

SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE

**Keynote Speaker
& Workshop Presenter:**



GLEN MORRIS

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

WHAT YOU WILL GAIN FROM ATTENDING THIS CONFERENCE:

- 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

WHO SHOULD ATTEND:

- 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

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**22nd & 23rd
May 2018**

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SOLAR-DIESEL HYBRID & BATTERY SYSTEMS CONFERENCE

CONFERENCE PROGRAM – DAY ONE – 22nd May 2018

8.00am	Registration	
8.20am	Opening Address	
8.30am Session 1 KEY NOTE	Building the Autonomous Grid Glen Morris – Principal of SolarQuip 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.	
9.30am Session 2 CASE STUDY	Tipperary Station Case Study – Solar-Diesel Generator System in the Northern Territory Thomas Wearne – Solar PV Design Engineer, Country Solar NT 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 kVA) 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.	
Morning Tea – 10.15am		
10.45am Session 3 CASE STUDY	Hybrid System Using Innovative Variable Speed Drive (VSD) Technology for Pumping Water Nick Hughes – Manager, Power Electronics Australia 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.	
11.30am Session 4 CASE STUDY	Zinc-Bromine Modules (ZBM)s Batteries for Off-Grid Solar Application Mike Giulianini – Chief Technical Officer, Redflow Zinc-Bromine Modules (ZBM)s 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 ZBM)s are ideal candidates for all applications requiring a robust and reliable energy storage system. Here Mike will explain some of the benefits of ZBM)s batteries including some local case studies and applications of this new technology.	
Lunch – 12.15pm		
1.15pm Session 5 CASE STUDY	Getting the Most from Your Battery Stephanie Moroz – CEO, Davanz 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.	

2.00pm Session 6 CASE STUDY	Solar PV, Diesel and Battery Systems – Applications & Case Studies Lachlan Bateman – Managing Director, Clean Technology Partners Pty Ltd 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.	
Afternoon Tea – 2.45pm		
3.15pm Session 7 CASE STUDY	When is a Micro Grid Appropriate? Lindsay Hart – Manager Australia/NZ, Selectronic 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.	
4.00pm Session 8 CASE STUDY	100MW+ Solar Farm Design, Challenges and Lessons Learnt Innocent Bisanabo – Director & Principal Electrical Engineer, Power Grid Solutions Pty Ltd Abdallah Qader – Renewable Engineer, Downer 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 as 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.	 
4.45pm Session 9 CASE STUDY	The role of Cloud Forecasting Systems in Hybrid/PV Installations Chris Pye – Division Manager – Renewable Energy, ComAp 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 of marginal benefit to the customer/end user can subsequently become a viable commercial interest.	
Closing – 5.00pm		



NETWORKING SESSION – 5.00pm to 6.00pm

An hour dedicated for all attendees to meet and socialise with experts and industry peers at the Solar-Diesel Hybrid & Battery Systems Conference Cocktail Hour.

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CONFERENCE PROGRAM – DAY TWO – 23rd May 2018

8.30am

Session
1

WORK
SHOP

FULL DAY WORKSHOP

(including morning tea, lunch and afternoon tea)

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.

WORKSHOP PRESENTER



GLEN MORRIS

Glen Morris has more than 20 years experience in the renewable sector and has personally lived off the electricity grid for most of that time!

Glen is passionate about the benefits of clean energy, teaching widely on renewable energy across Australia, China and New Zealand. Glen sits on Standards Australia's EL-042 committee, which writes the industry standards for the renewable energy sector. As the former Vice President of the Smart Energy Council, Glen has helped develop industry training and certification in Australia. Glen has recently embarked on a new project, the SmartEnergyLab which provides testing and field evaluation for products in the energy storage, renewable energy generation and smart energy management fields.

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.

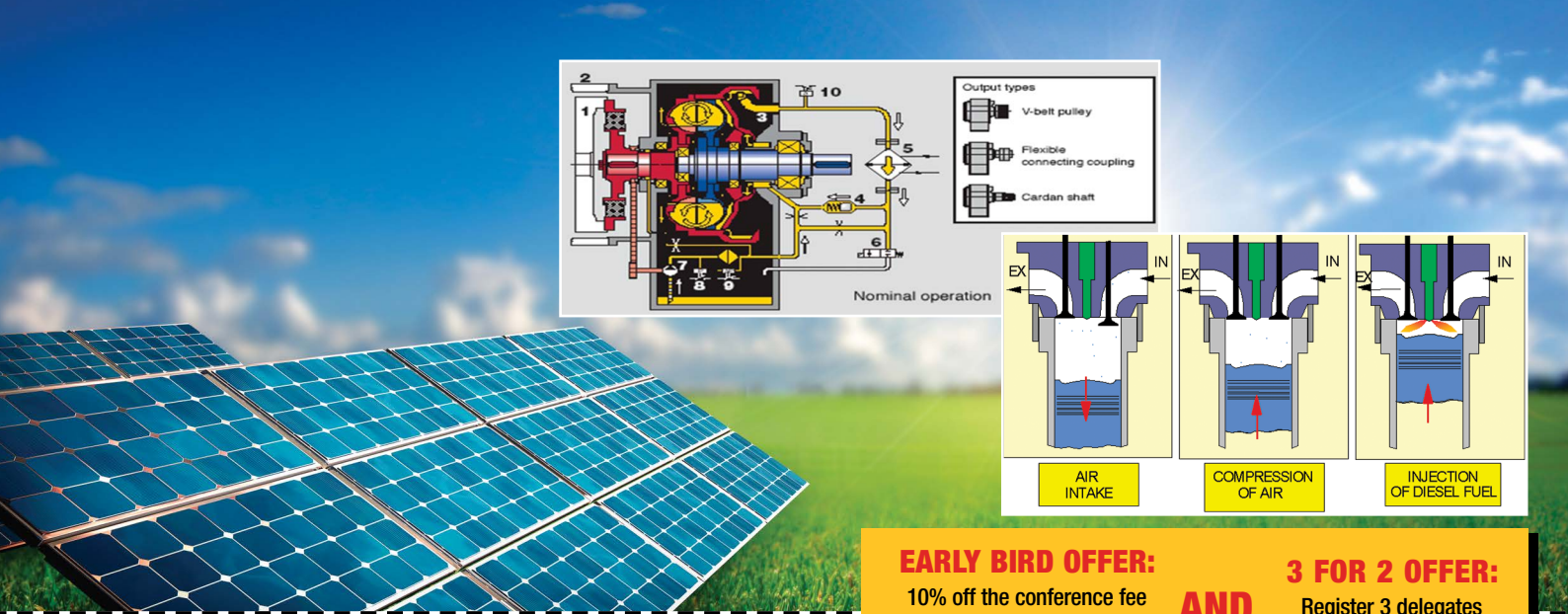
This event has been developed to build and accelerate the knowledge of industry employees and business owners on best practice when it comes to the design, installation and maintenance of renewable hybrid systems. The main goal of this conference is to help businesses take advantage of cleaner energy 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



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

1. DELEGATE DETAILS

Contact:	Company Name:		
Company Address:			
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Admin/Accounts Payable Email:			

ATTENDEES:	1	Mr/Ms:	Job Title:
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	2	Mr/Ms:	Job Title:
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	3	Mr/Ms:	Job Title:
		Email:	

2. HOW DID YOU HEAR ABOUT THIS EVENT?

<input type="checkbox"/> Received an email from IDC	<input type="checkbox"/> Received a brochure in the mail	<input type="checkbox"/> Searched online (Google, Yahoo etc)
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<input type="checkbox"/> Other (please specify) _____		

3. REGISTRATION & PAYMENT DETAILS

Prices shown are inclusive of GST

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

<input type="checkbox"/> OPTION 1: Early Bird Discount 10% OFF – Book before 24 th April (SAVE \$179.50)	1615.50 x _____ delegates = \$ _____
<input type="checkbox"/> OPTION 2: Standard Rate (NO Early Bird Discount) – Book after 24 th April	1795.00 x _____ delegates = \$ _____
<input type="checkbox"/> OPTION 3: 3 for 2 Offer AND Early Bird 10% OFF – Book before 24 th April (SAVE \$2154)	3 delegates: 2 x 1615.50 = \$3231.00 = \$ _____
<input type="checkbox"/> OPTION 4: 3 for 2 Offer AND Standard Rate (NO Early Bird) – Book after 24 th April (SAVE \$1795)	3 delegates: 2 x 1795 = \$3590 = \$ _____

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

TOTAL DUE = \$ _____

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3 FOR 2 OFFER:

Register 3 delegates
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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 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.

Enquiries

1300 138 522 or conferences@idc-online.com

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